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ABSTRACT

In considering the team approach to architectural service, emphasis is given to the advantages of many specialists working together to solve complex building problems. An actual use of the team approach is described to illustrate how Caudill, Rowlett and Scott Architects solved the problems in planning a science building for Colorado College. The sequence of events is described to show the early client-architect team action in planning; the activities extend from the conception of the building through the client approval of the basic design. Diagrammatic plans and sketches are included. [Hard copy not available due to marginal legibility of original document.] (FS)

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THE TEAM APPROACH TO PLANNING A COLLEGE SCIENCE BUILDING

DAVID B. YARBROUGH

INVESTIGATION No. 5

THE TEAM APPROACH TO PLANNING A COLLEGE SCIENCE BUILDING

BY

DAVID B. YARBROUGH
ARCHITECT

SEPTEMBER 1960

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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WHY THIS REPORT

CRS has always been research minded. This attitude stemmed from close association with the Texas Engineering Experiment Station.

As far back as 1952, the firm began sharing its research reports. This series was called "research-architecture." In 1954, CRS was commissioned by the American School and University to prepare a second series of research reports. These reports were widely distributed in the hope of improving schoolhouses of America. A third series, called INVESTIGATIONS, was initiated in 1960.

This report is one of the latest series. Some of these INVESTIGATIONS involve actual research, while others represent current thoughts of some CRS staff members. There will also be times when guest professionals are brought in to contribute to the series. INVESTIGATIONS will cover various areas of architecture.

CRS hopes that this report will in some small way help our clients and professional friends achieve a better environment for themselves and their neighbors.

THE TEAM APPROACH TO PLANNING A COLLEGE SCIENCE BUILDING

THE TITLE OF THIS INVESTIGATION SUGGESTS TWO DISTINCT, YET CLOSELY RELATED THOUGHTS FOR DISCUSSION:

1. THE TEAM APPROACH
2. PLANNING A COLLEGE SCIENCE BUILDING.

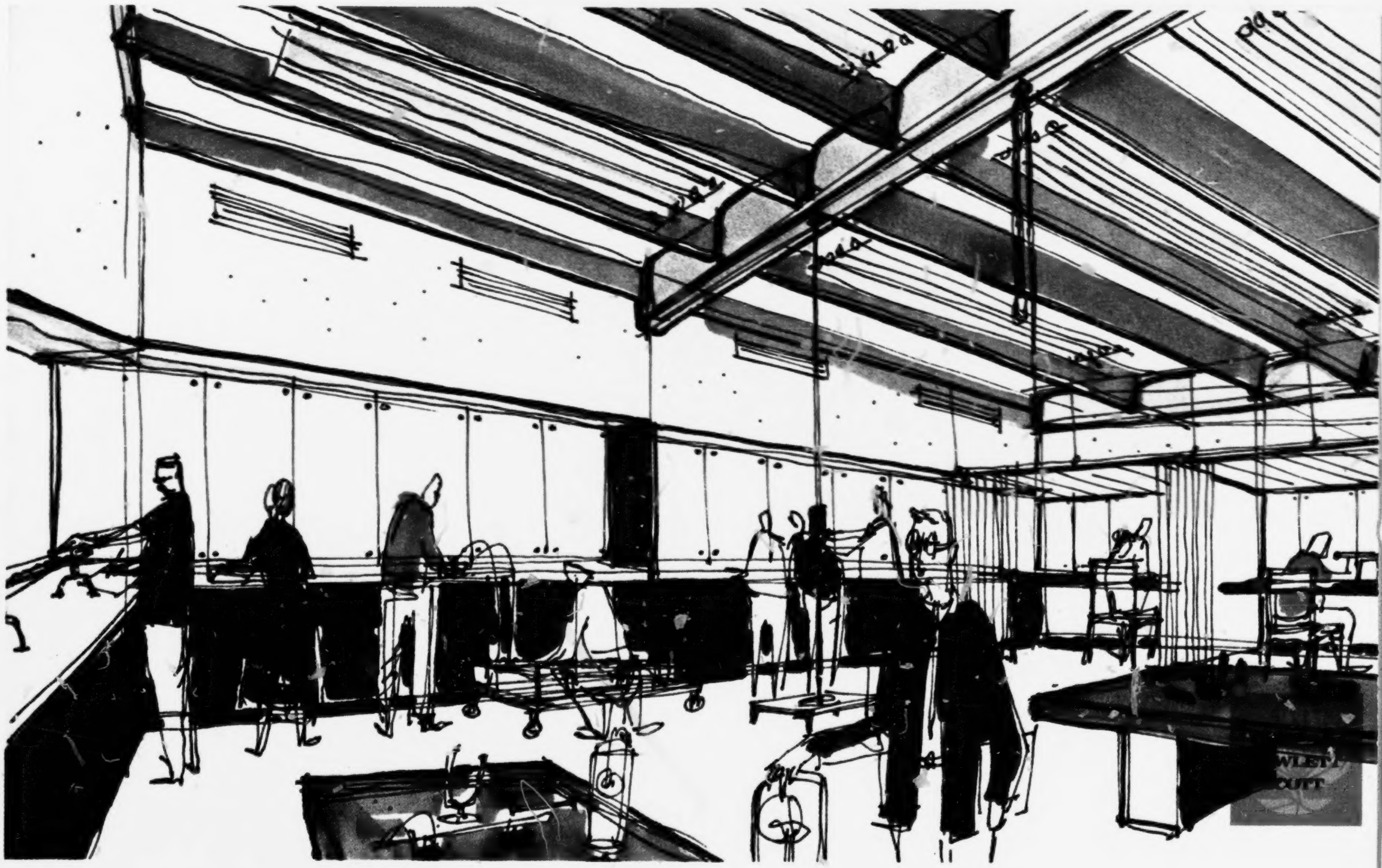
EACH IN ITSELF PROVOKES MANY INTERESTING QUESTIONS TO BE ANSWERED. THIS INVESTIGATION DEALS WITH BOTH, EMPHASIZING THE TEAM APPROACH TO ILLUSTRATE HOW CRS SOLVED THE PROBLEMS IN PLANNING THE COLORADO COLLEGE'S PROPOSED SCIENCE BUILDING.

WHAT IS THE TEAM APPROACH?

THE CONCEPT OF TEAM APPROACH HAS FOR MANY YEARS BEEN A DEEP ROOT OF CRS ARCHITECTURAL SERVICE, NOT ONLY IN THEORY, BUT IN PRACTICE AS WELL. WE BELIEVE THAT IT TAKES MANY SPECIALISTS WORKING TOGETHER AS A SMOOTH-RUNNING TEAM TO SOLVE THE COMPLEX BUILDING PROBLEMS OF THIS DAY. WE ALSO HAVE STRONG CONVICTIONS THAT THE PEOPLE WHO ARE TO USE THE BUILDING MUST PARTICIPATE IN THE PLANNING PROCESS AND BE ACTIVE MEMBERS OF THE PLANNING TEAM. WE KNOW HOW GOOD BUILDINGS COME ABOUT. THEY RESULT THROUGH THE GROUP DYNAMICS OF GOOD ARCHITECTS GETTING TOGETHER WITH GOOD CLIENTS. THE BETTER THE TEAM, GENERALLY THE BETTER THE BUILDINGS.

WHO ARE THE PLAYERS?

WHO MAKES UP THE TEAM ROSTER IN PLANNING A COLLEGE SCIENCE BUILDING? AS IN ANY BUILDING PROGRAM, THE KEY PLAYERS ARE THE CLIENTS, THE ARCHITECTS, AND THE ENGINEERS. AFTER DESIGN IS COMPLETED, THE BUILDERS BECOME IMPORTANT MEMBERS OF THE TEAM, AND TO A CERTAIN DEGREE, THEY FREQUENTLY PARTICIPATE IN THE PLANNING PHASES OF THE PROJECT.



This sketch by Frank Lawyer, Chief Designer for CAUDILL, ROWLETT, and SCOTT, is a view of one of the proposed Physics Laboratories for the proposed Olin Hall at The Colorado College.

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Why Not The One-Man Approach?

Why shouldn't one individual plan a college science building? The answer is simple: an individual with the diversified skills and backgrounds for all the elements necessary to the programming, planning, design and execution of such a project, is extremely rare, if he exists at all. Frank Lloyd Wright perhaps had all of these requirements, but the world recently lost this genius.

A warning, however, about the team approach. A very necessary ingredient for any successful team action is strong leadership. If the team functions only as a voting committee without a strong team captain, its efforts can produce results of lesser quality than the one-man approach. Too often, committee action without leadership results in a poor compromise. You can't vote on design, but design can be stimulated by group action. Good design can flourish through group action with strong, practical leadership. Directing, refereeing, and editing are prime functions of the leader of the team.

Specialization appears to be the keynote to the team approach. The sum of the efforts of a group of specialists assembled for each aspect of a program, certainly seems to present a more impressive equation than the sum of the effort of one individual. Again, it is the team that counts.

Planning a College Science Building

Now let us look at the sequence of events that have transpired to date and which represent the early phases of client-architect team action in planning a college science building. The following outline of activities extend from the conception of the building through the client approval of the basic design.

Birth Of The Project

Dr. Charles L. Horn of Minneapolis, President of the Olin Foundation of New York, announced May 17, 1959, to the students, faculty, and trustees of The Colorado College assembled for the annual Honors Convocation, that the Foundation had voted to give $1,490,000. for the construction of a new science building for the College. The Olin Foundation, created by the late Franklin W. Olin, founder of Olin Industries, Inc., has a pattern of making major building grants to selected independent colleges. The gift to The Colorado College is the first the foundation has made in the West.

The College administration and trustees, having learned of the Olin grant, immediately set out to select an architect for the project and decided upon the firm of Caudill, Rowlett, and Scott.

The Team Roster

In the back of this report listed as Appendix A, you will see the line-up of the total planning team. The key people are Dr. Louis T. Benezet, inspiring President of The Colorado College, and a great planner in his own right. Heading the Faculty Committee was Dr. Wilbur H. Wright, one of the most energetic young professors we have ever had the pleasure of knowing. What a masterful job he did of coordinating the efforts of the faculty! Another active leader of the large group was a member of the Board of Trustees and Chairman of the Building-Grounds Committee, Russell T. Tutt. Leader of the CRS group was my associate, Herbert Paseur. And, of course, Bill Caudill was in the middle of every action in this early stage. You can't keep him away from a squatters session. I shall tell you later about the squatters.

THE APPROACH

HERE IS A SHORT RUN-DOWN OF THE PLANNING ACTIVITIES PRIOR TO THE WEEK OF AUGUST 15 - THE TIME-PERIOD OF THE SQUATTERS.

APRIL 4 - DR. BENEZET INITIATED ACTION FOR THE COLLEGE BY SELECTING A FACULTY COMMITTEE TO FORMULATE A PROGRAMMING-PLANNING REPORT FROM THE THREE SCIENCE DEPARTMENTS - - PHYSICS, CHEMISTRY, AND BIOLOGICAL SCIENCES - THAT WOULD OCCUPY THE BUILDING. HE ALSO APPOINTED TO THE FACULTY COMMITTEE REPRESENTATIVES OF OTHER CAMPUS GROUPS SUCH AS SOCIAL SCIENCES, HUMANITIES, CLASS SCHEDULING, DEAN OF THE COLLEGE, AND DIRECTOR OF PHYSICAL PLANTS.

JUNE 1 - DR. BENEZET INSTRUCTS THE ARCHITECTS. SEE APPENDIX B FOR A LETTER TO BILL CAUDILL, EXPRESSING MOST VIVIDLY THE BROAD OBJECTIVES TO BE SOUGHT IN THE DESIGN OF THE BUILDING.

JUNE 15 - HERB PASEUR, REPRESENTING CRS, MET WITH THE ADMINISTRATION AND THE PROGRAMMING-PLANNING COMMITTEE TO OUTLINE A ROUGH DRAFT OF THE PROGRAM.

JULY 11 - HERB PASEUR VISITED THE CHICAGO OFFICE OF SKIDMORE, OWINGS, AND MERRILL, ARCHITECTS FOR THE PROPOSED NEW LIBRARY BUILDING, TO COORDINATE THE PLANNING OF OUR BUILDING WITH THEIRS. WE KNEW THAT WE COULD NOT IGNORE THE ARCHITECTURAL EXPRESSION OF THE FUTURE LIBRARY IN PLANNING THE NEW SCIENCE BUILDING, ANY MORE THAN WE COULD IGNORE THE EXISTING BUILDINGS ON THE CAMPUS. OUR JOB WAS TO HELP BRING ARCHITECTURAL UNITY TO THE CAMPUS.

JULY 15 - FACULTY COMMITTEE COMPLETES ITS REPORT. SEE DOCUMENT LISTED AS APPENDIX C.

JULY 20 - CAUDILL AND PASEUR MET WITH THE ADMINISTRATION AND FACULTY PROGRAMMING COMMITTEE TO DEFINE THE BROAD CONCEPTS OF THE PROJECT. THEY PRESENTED THE ARCHITECT'S RESPONSE TO THE COMMITTEE REPORT UNDER THE HEADING OF ARCHITECTURAL-EDUCATIONAL CONCEPTS AS LISTED IN APPENDIX D.

JULY 25 TO
AUGUST 12 - IMMEDIATELY FOLLOWING A SERIES OF MEETINGS OF THE ADMINISTRATION, STAFF, AND CRS STAFF MEMBERS, CRS ROLLED UP ITS SLEEVES AND EMBRACED AN INTENSIVE RESEARCH PROGRAM. THIS RESEARCH SOUGHT MANY AVENUES:

1. VISITS TO RECENTLY-CONSTRUCTED, OUTSTANDING COLLEGE SCIENCE PLANTS.

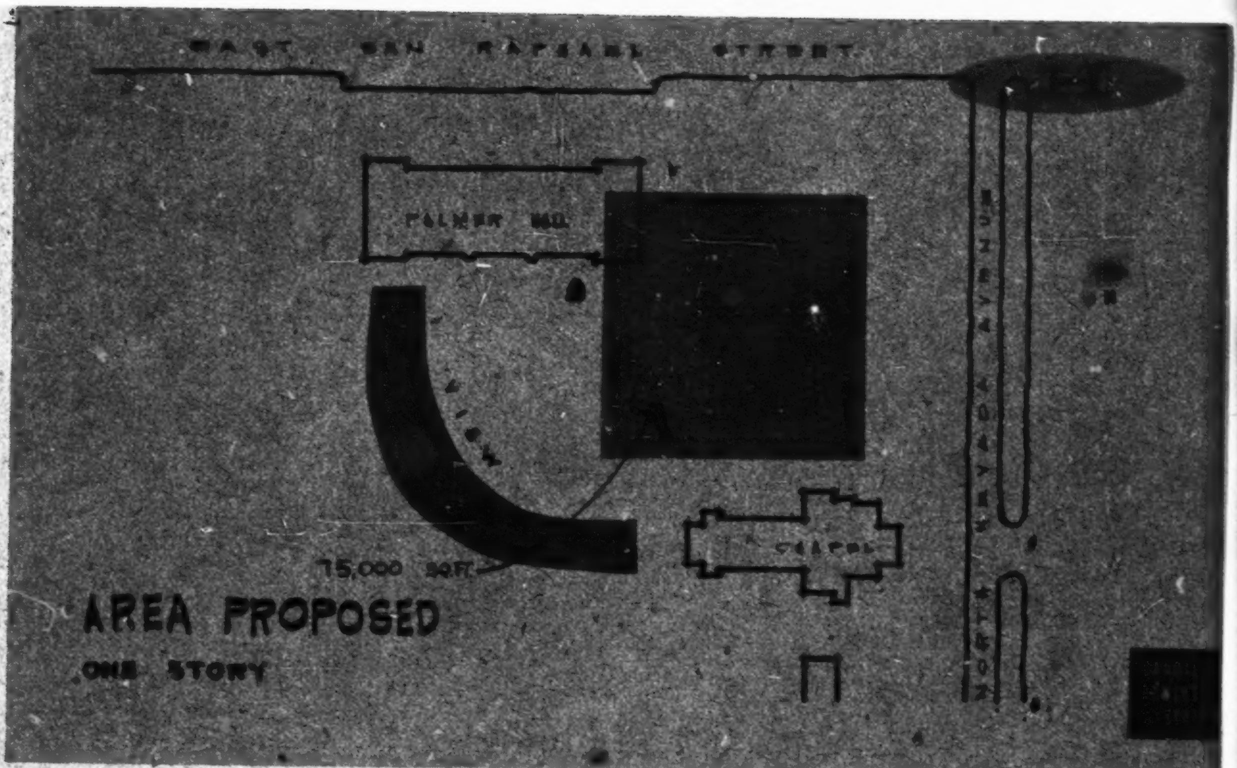
2. READING OF PENETRATING SCIENCE EDUCATION PHILOSOPHY. FOR SALIENT QUOTATIONS SEE APPENDIX E.

3. ANALYSES OF BASIC INHERENT PROBLEMS IN THE BUILDING OF ANY SCIENCE BUILDING.

4. CONSULTATION WITH THE EDUCATIONAL FACILITIES LABORATORY STAFF IN NEW YORK CITY, CURRENTLY CONDUCTING A RESEARCH STUDY OF NEW COLLEGE PHYSICS BUILDINGS IN CONJUNCTION WITH THE AMERICAN INSTITUTE OF PHYSICS.

5. EXPLORATION BY CRS STRUCTURAL, MECHANICAL AND ELECTRICAL ENGINEERING SECTIONS OF FEASIBLE AND ECONOMICAL BASIC STRUCTURAL AND MECHANICAL-ELECTRICAL SYSTEMS, WHICH WOULD FACILITATE MAXIMUM FLEXIBILITY.

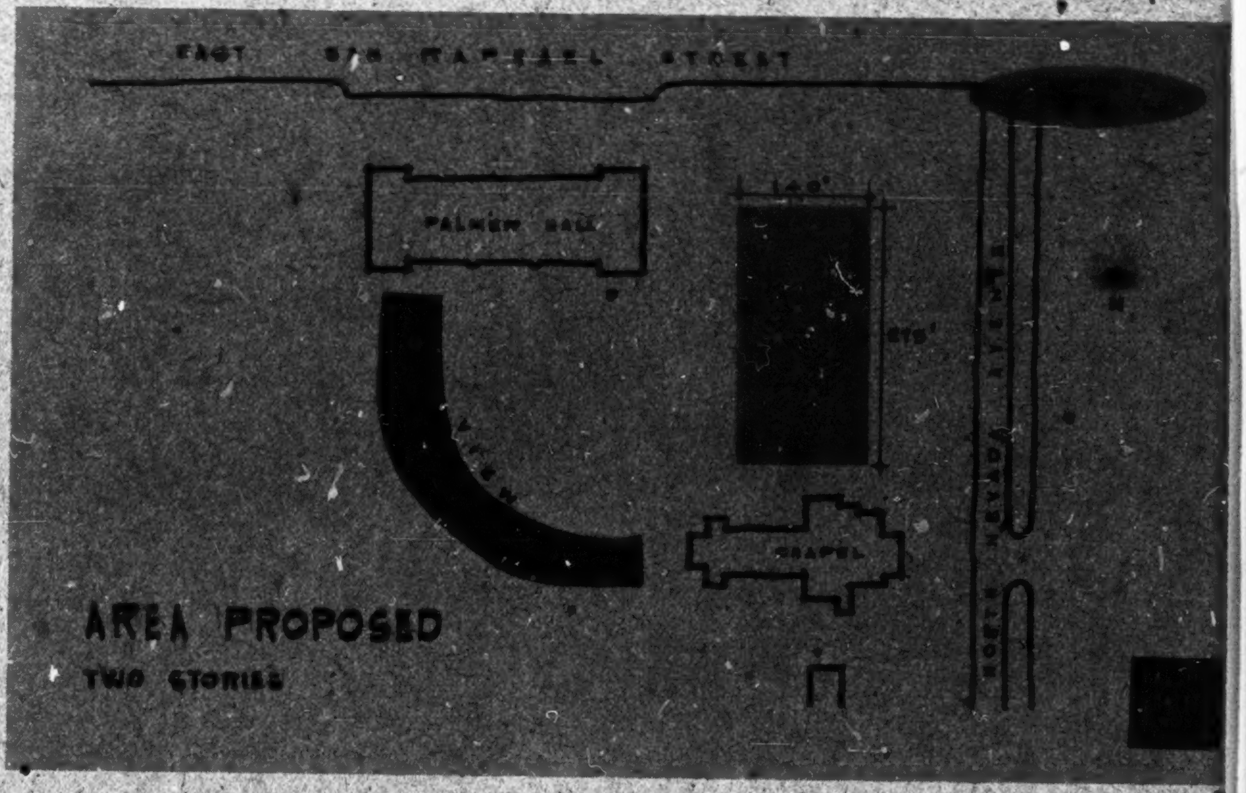
AFTER CERTAIN BASIC CONCLUSIONS WERE REACHED AS A RESULT OF THIS RESEARCH, CRS GRAPHICALLY RECORDED ITS FINDINGS. THESE GRAPHIC STATEMENTS - SOME OF WHICH ARE SHOWN ON THE FORTHCOMING PAGE - LATER SERVED AS A SPRINGBOARD TO THE ULTIMATE ARCHITECTURAL INTERPRETATIONS OF EDUCATIONAL CONCEPTS AND PROGRAM REQUIREMENTS.



AREA PROPOSED

ONE STORY

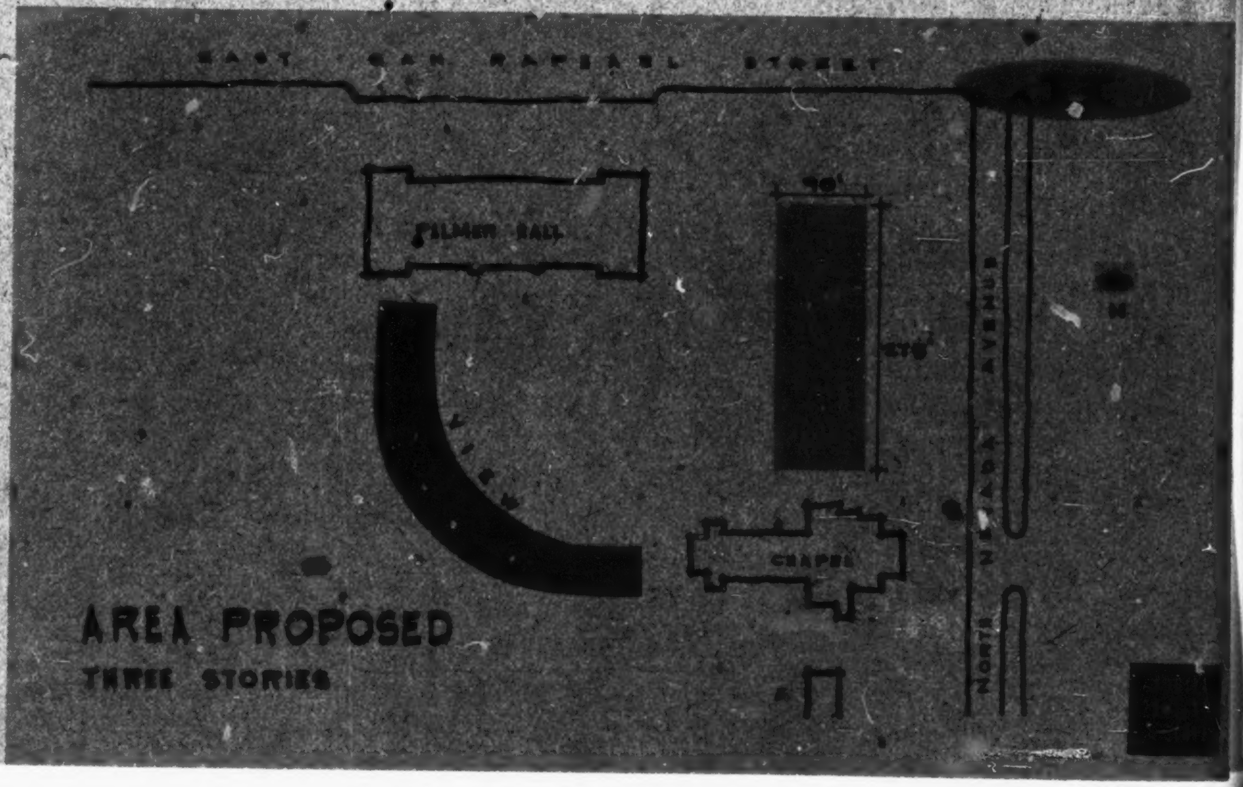
EAST SAN RAFAEL STREET
PALMER HALL
VIEW
75,000 SQ.FT.
CHAPEL
NORTH NEVADA AVENUE



AREA PROPOSED

TWO STORIES

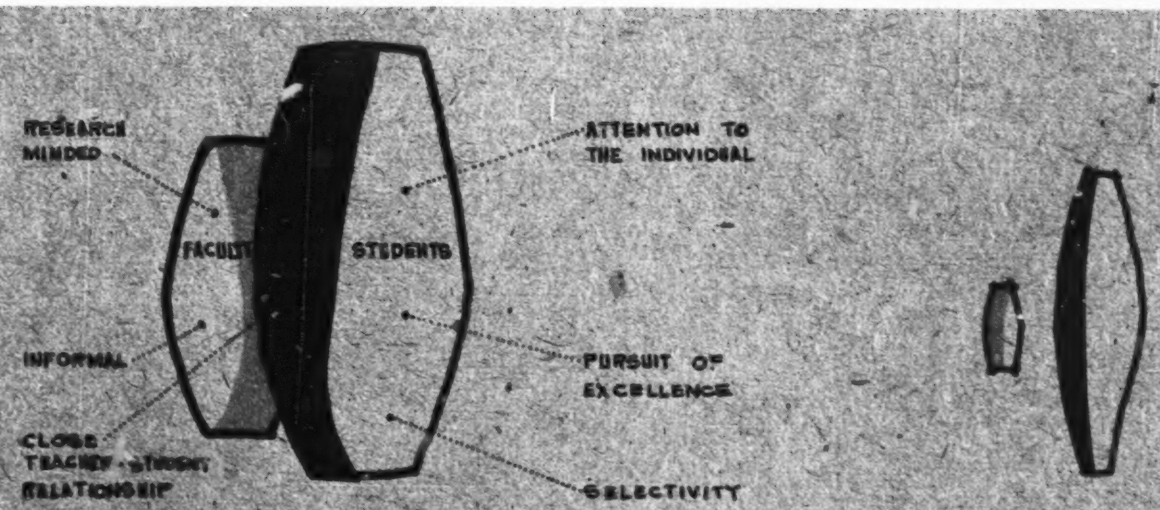
EAST SAN RAFAEL STREET
PALMER HALL
140'
275'
VIEW
CHAPEL
NORTH NEVADA AVENUE



AREA PROPOSED

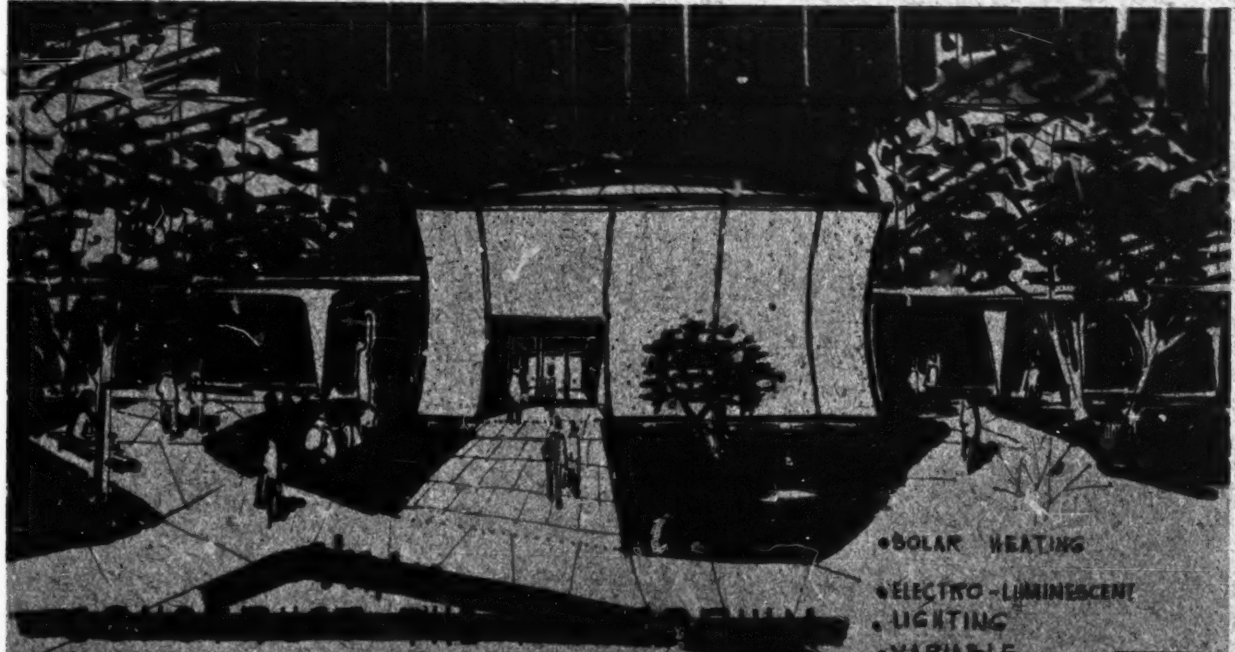
THREE STORIES

EAST SAN RAFAEL STREET
PALMER HALL
90'
275'
VIEW
CHAPEL
NORTH NEVADA AVENUE


RESEARCH MINDED
FACULTY
INFORMAL
CLOSE TEACHER - STUDENT RELATIONSHIP
STUDENTS
ATTENTION TO THE INDIVIDUAL
PURSUIT OF EXCELLENCE
SELECTIVITY

LIBERAL-ARTS COLLEGE

INSTITUTIONS

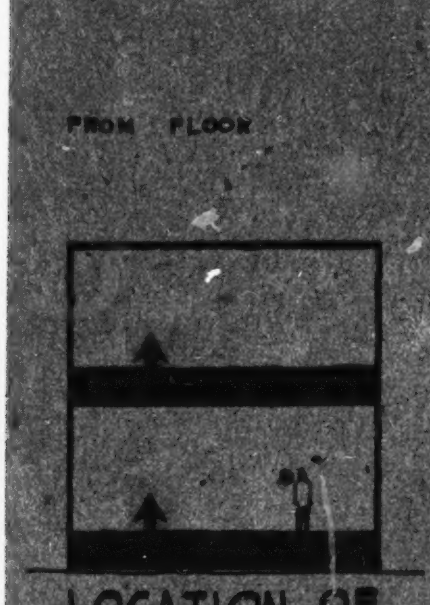


[redacted]

USING THE LATEST EXAMPLES OF TECHNOLO
AND PROFESSIONAL RESEARCH

- SOLAR HEATING
- ELECTRO-LUMINESCENT LIGHTING
- VARIABLE ACOUSTICS
- STRUCTURAL PLAST

FROM FLOOR

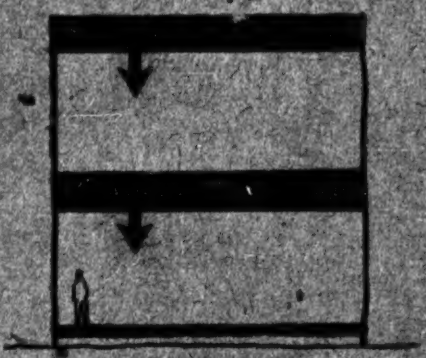


LOCATION OF MECHANICAL SERVICES

ADVANTAGES
1. SHORT VERTICAL FEEDS
2. HIDDEN SERVICES

DISADVANTAGES
1. LIMITED AVAILABILITY
2. INTERRUPTED FLOOR SPACE
3. FLOOR STRUCTURE PROBL

FROM CEILING



LOCATION OF MECHANICAL SERVICES

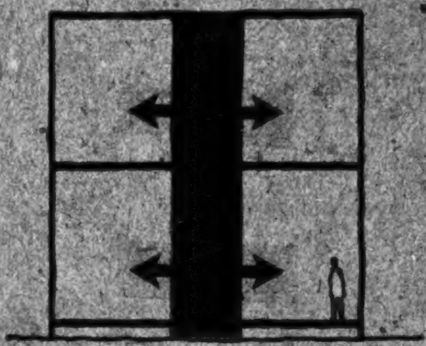
ADVANTAGES

1. AVAILABILITY
2. UNINTERRUPTED FLOOR SPACE

DISADVANTAGES

1. LONG VERTICAL FEED LINES
2. UNSIGHTLY CEILING

FROM CORE



LOCATION OF MECHANICAL SERVICES

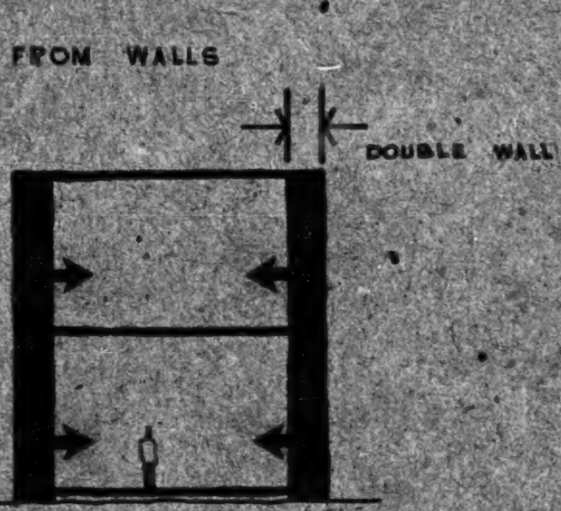
ADVANTAGES

1. COMPACTNESS FOR UTILITIES
2. HIDDEN SERVICES

DISADVANTAGES

1. INTERRUPTED FLOOR SPACE
2. LIMITED AVAILABILITY

FROM WALLS



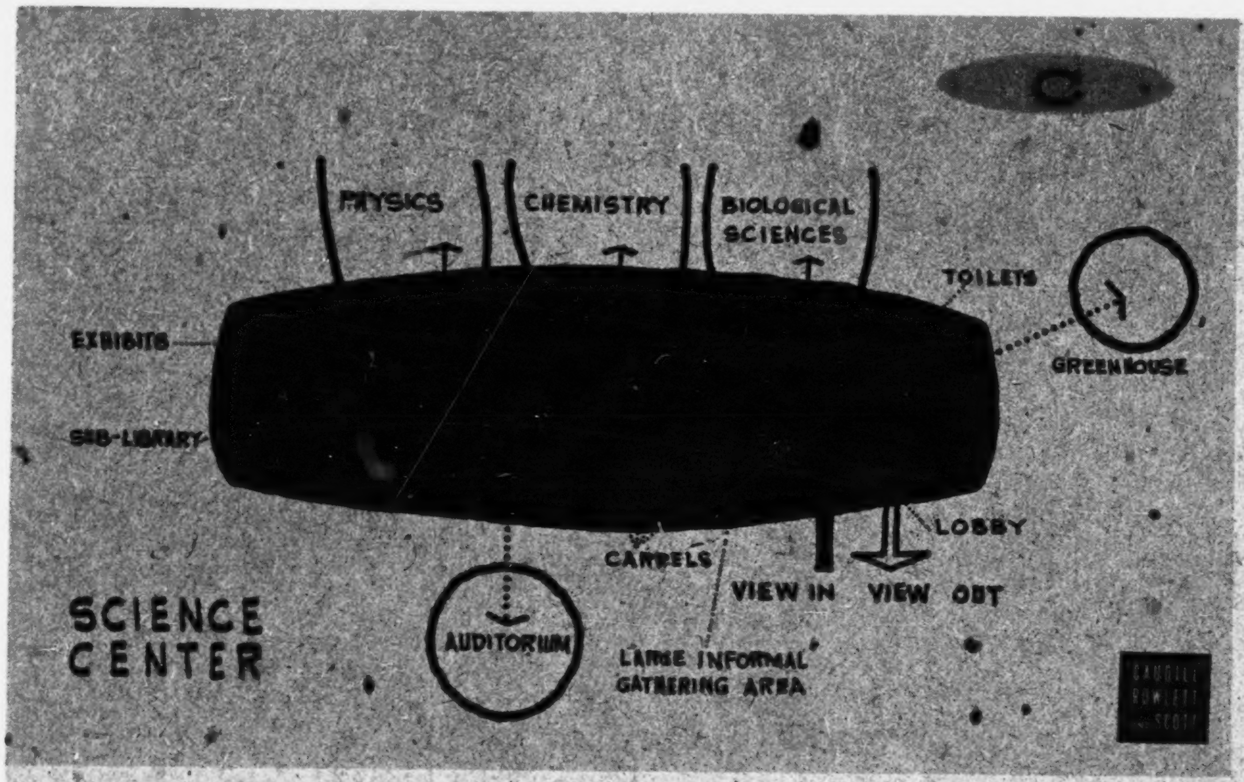
LOCATION OF MECHANICAL SERVICES

ADVANTAGES

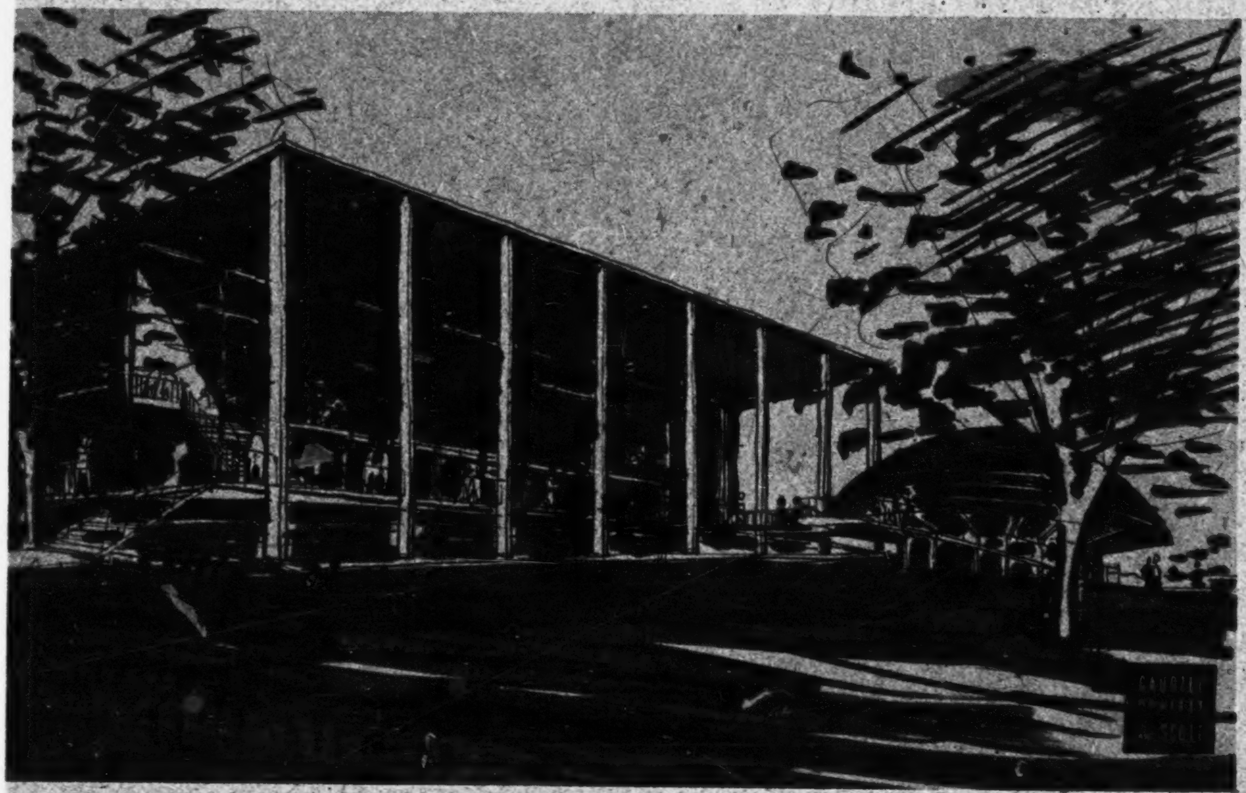
1. FREE INSIDE SPACE
2. DOUBLE WALL PROVING GOOD INSULATION

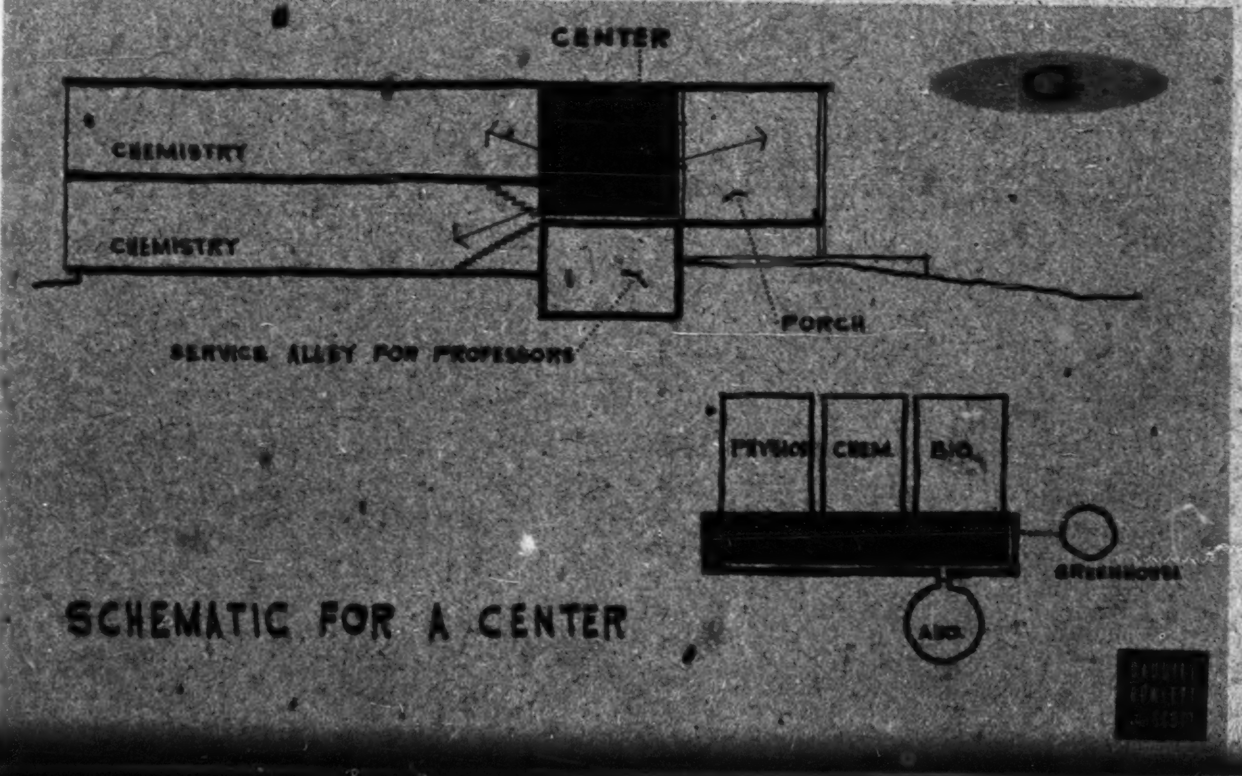
DISADVANTAGES

1. LIMITED WIDTH
2. LONG LINES TO CENTER OF LARGE AREAS

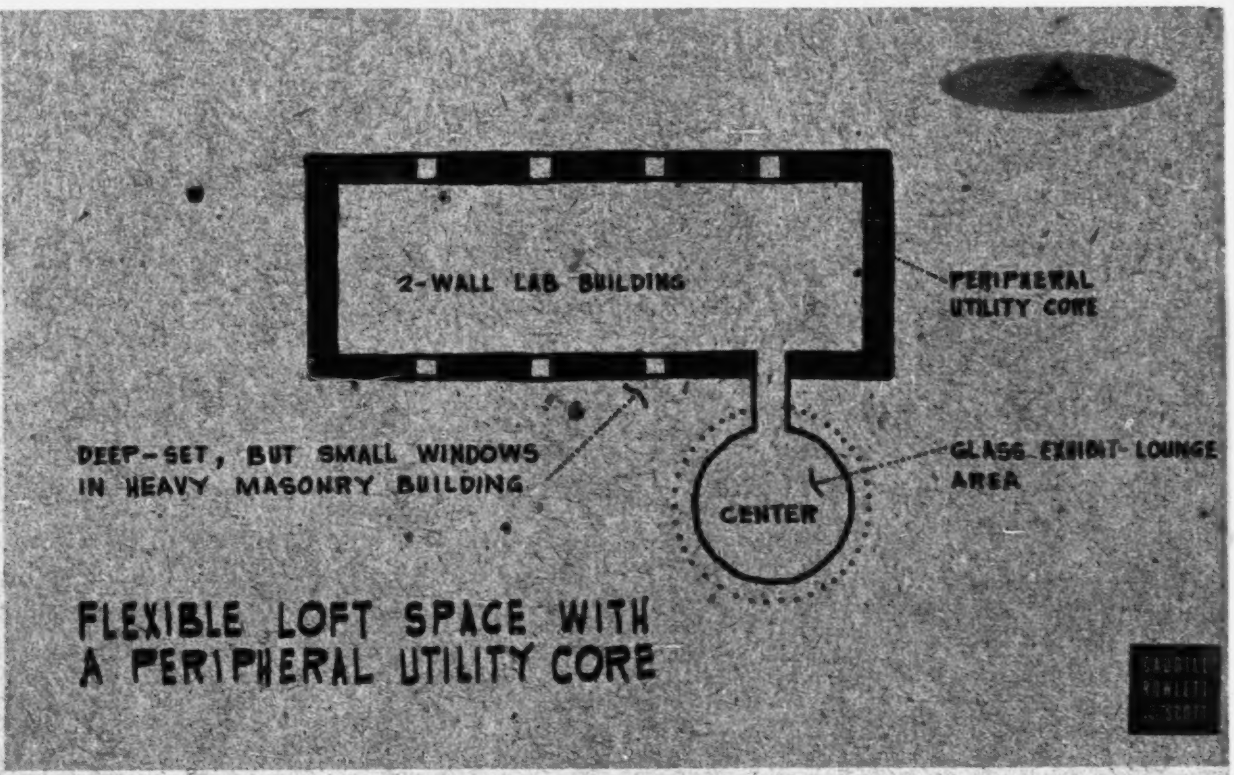

PHYSICS
CHEMISTRY
BIOLOGICAL SCIENCES
TOILETS
GREENHOUSE
EXHIBITS
SUB-LIBRARY
LOBBY
CARRELS
VIEW IN
VIEW OUT
AUDITORIUM
LARGE INFORMAL GATHERING AREA

SCIENCE CENTER

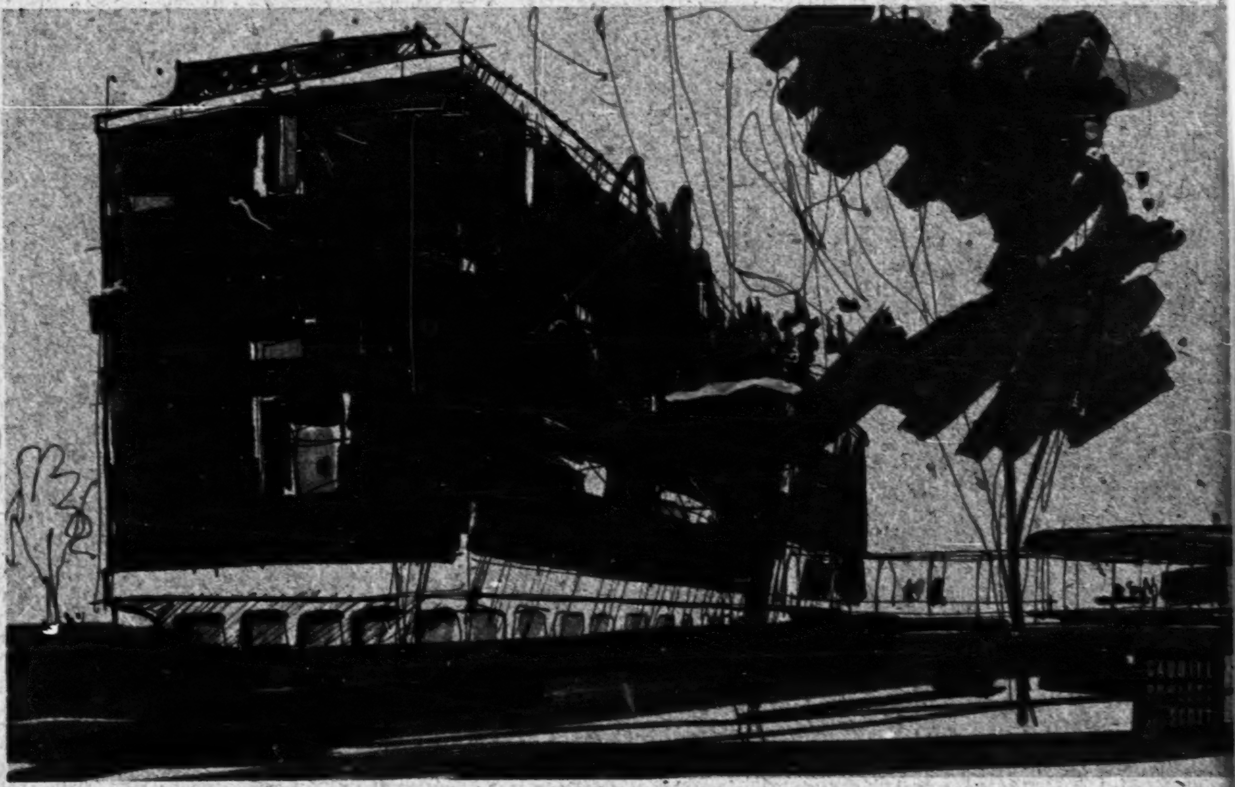


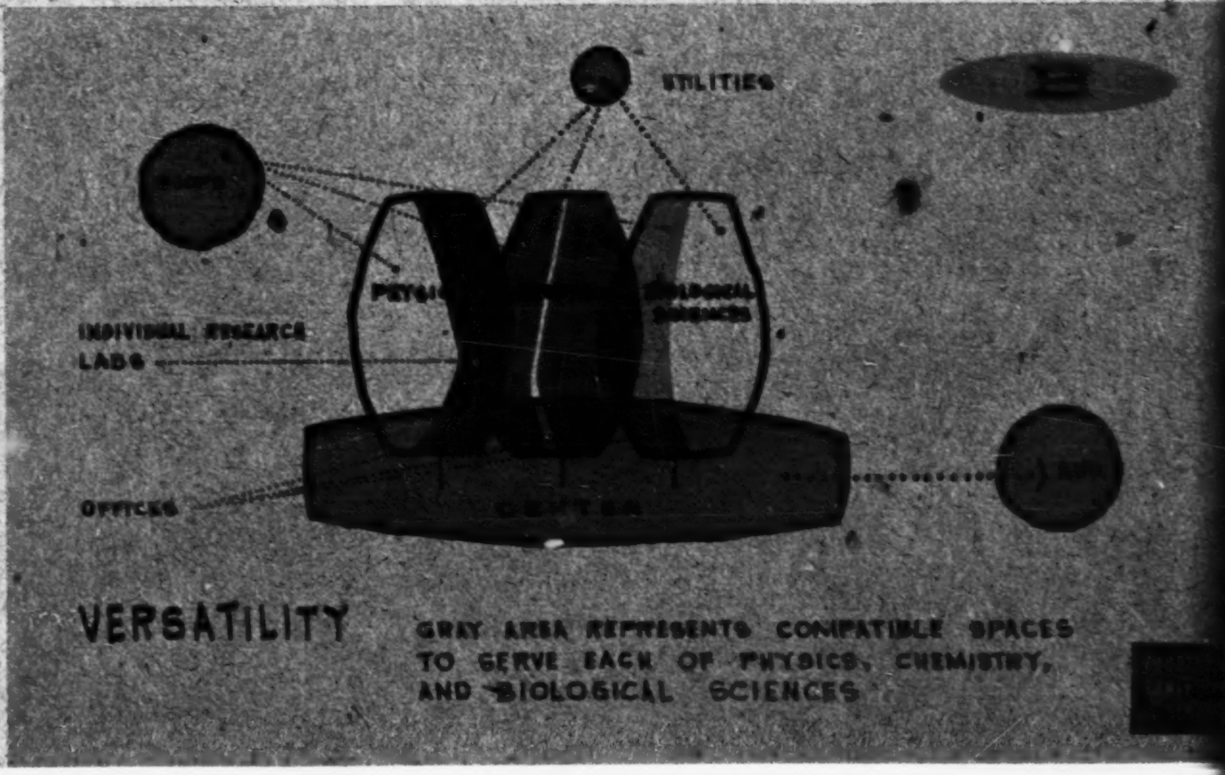

CENTER
CHEMISTRY
CHEMISTRY
PORCH
SERVICE ALLEY FOR PROFESSORS
PHYSICS
CHEM.
BIO.
GREENHOUSE
AUD.

SCHEMATIC FOR A CENTER


2-WALL LAB BUILDING
PERIPHERAL UTILITY CORE
DEEP-SET, BUT SMALL WINDOWS IN HEAVY MASONRY BUILDING
GLASS EXHIBIT-LOUNGE AREA
CENTER
CAUDILL ROWLETT SCOTT

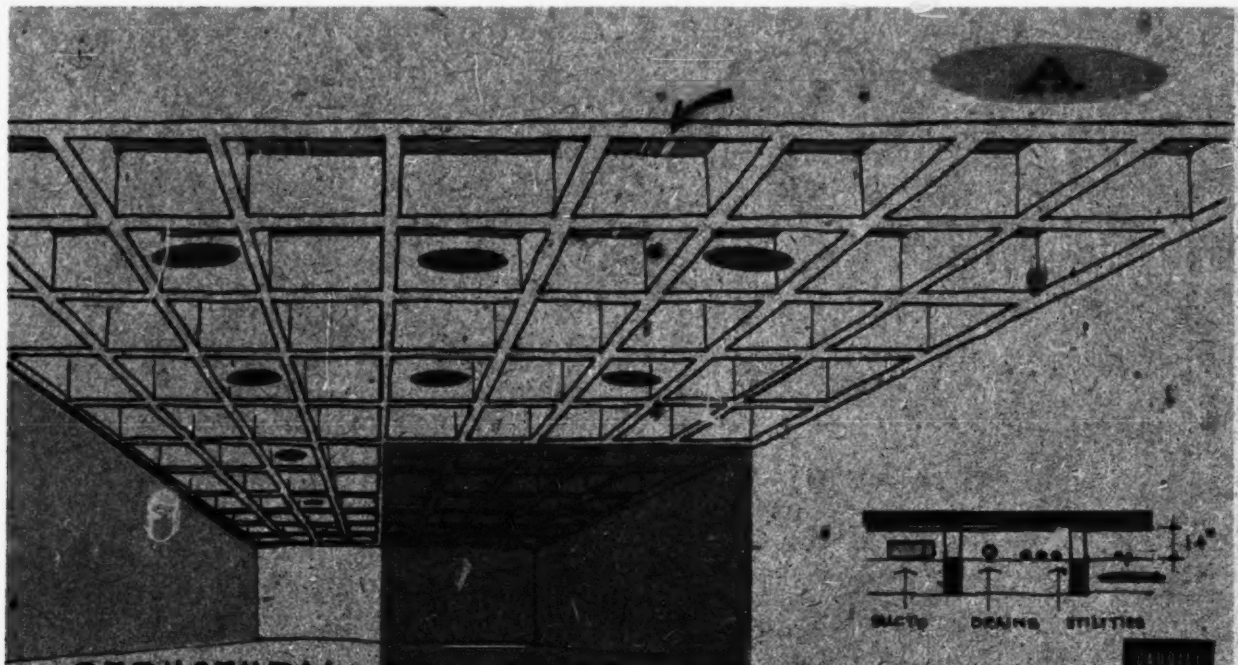
FLEXIBLE LOFT SPACE WITH A PERIPHERAL UTILITY CORE



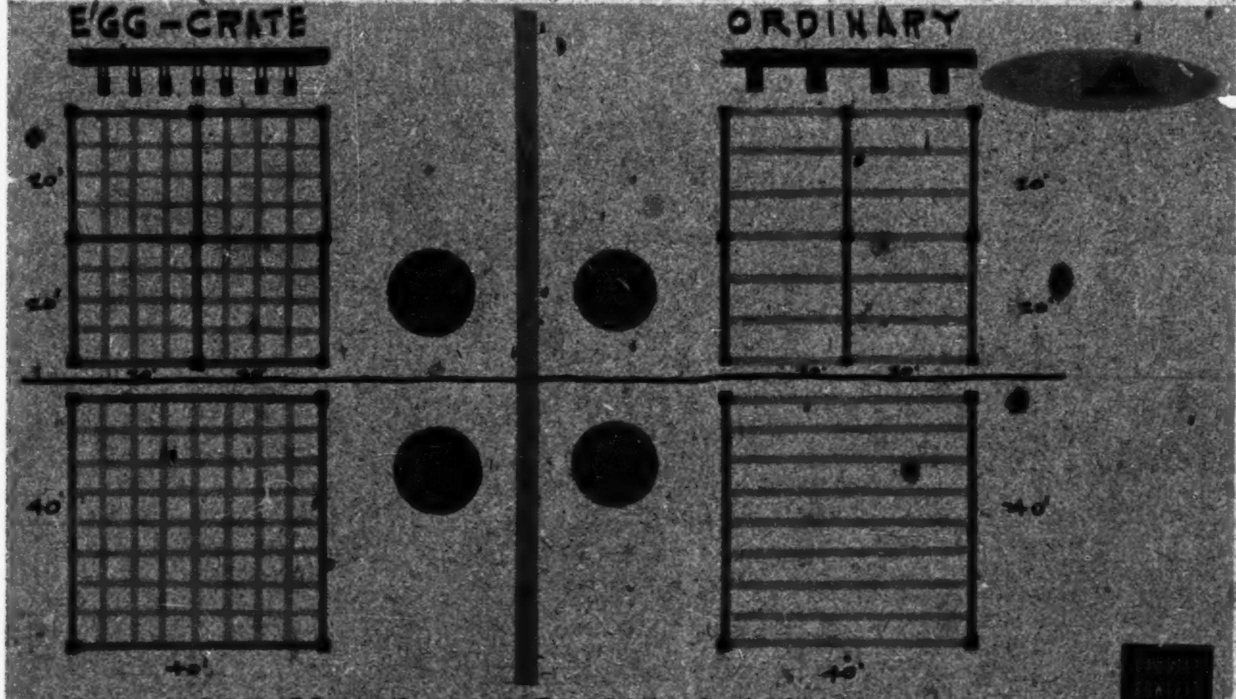

UTILITIES
PHYSIC
BIOLOGICAL SCIENCES
INDIVIDUAL RESEARCH LABS
OFFICES
CENTER

VERSATILITY

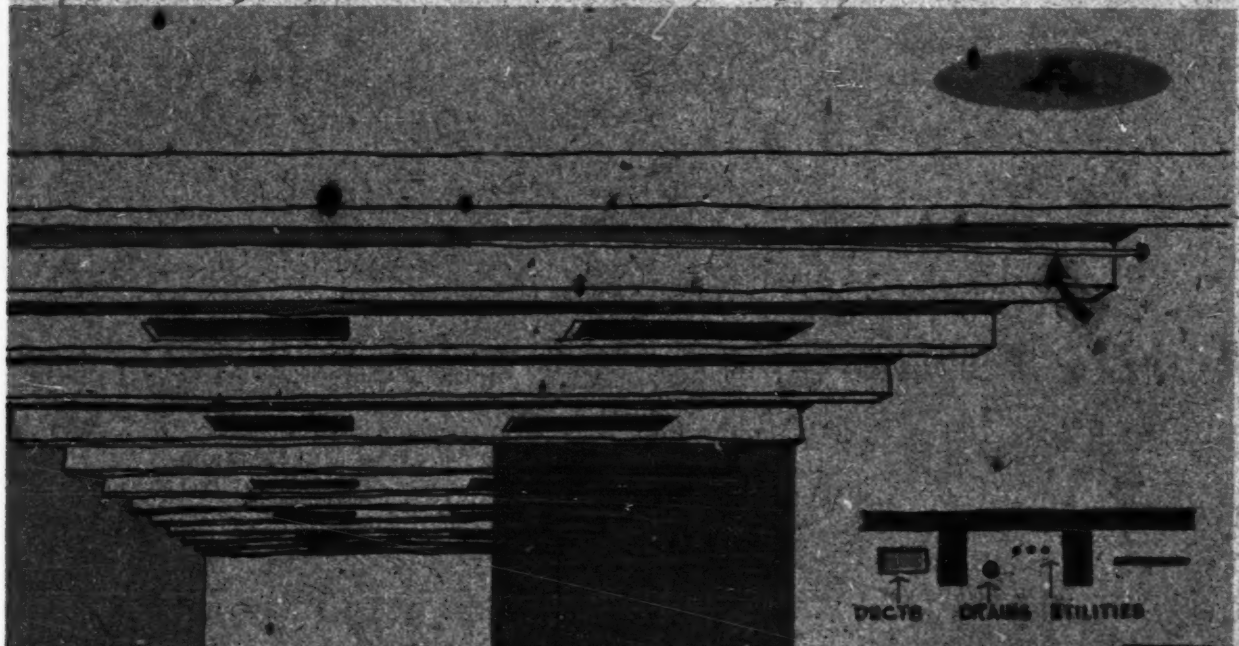
GRAY AREA REPRESENTS COMPATIBLE SPACES TO SERVE EACH OF PHYSICS, CHEMISTRY, AND BIOLOGICAL SCIENCES


14"
DUCTS
DRAINS
UTILITIES

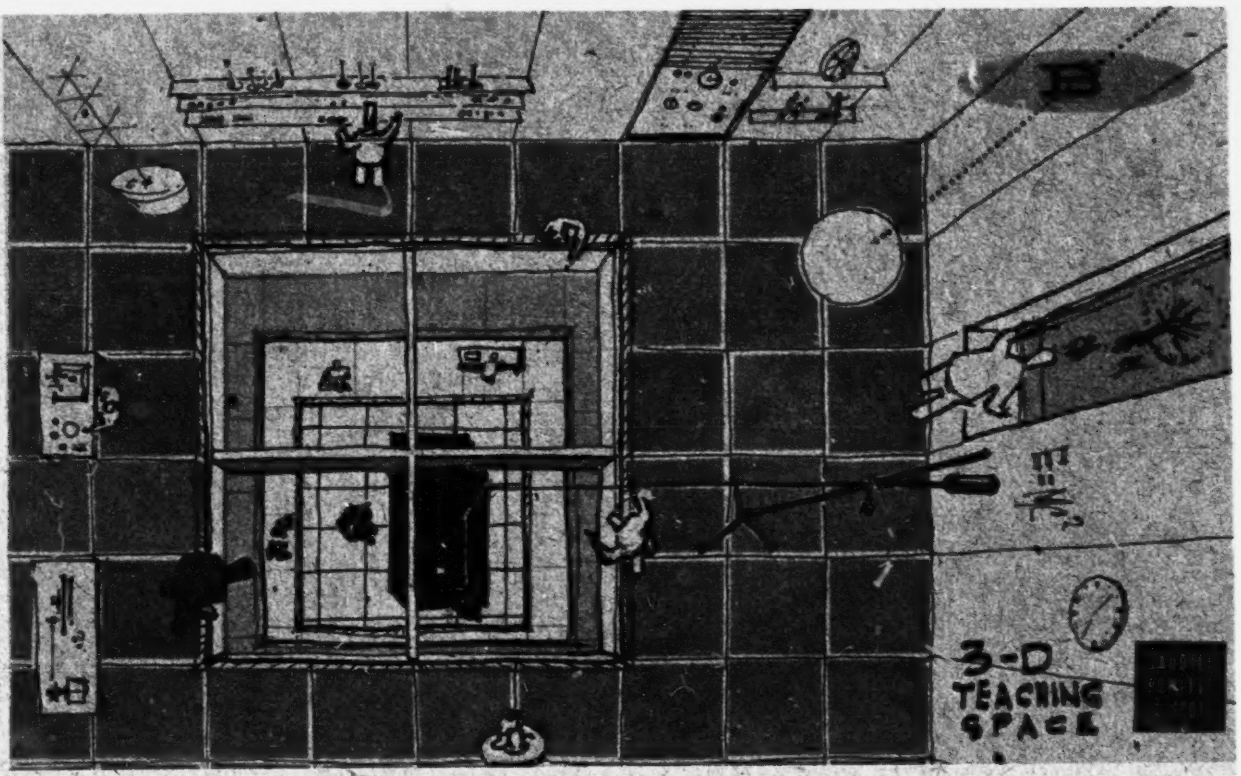
STRUCTURAL EGG-CRATE SEPARATED FROM FLOOR PROVIDES SCREENING AND SPACE FOR UTILITIES


EGG-CRATE
ORDINARY
20'
20'
40'
40'
20'
20'
40'
40'

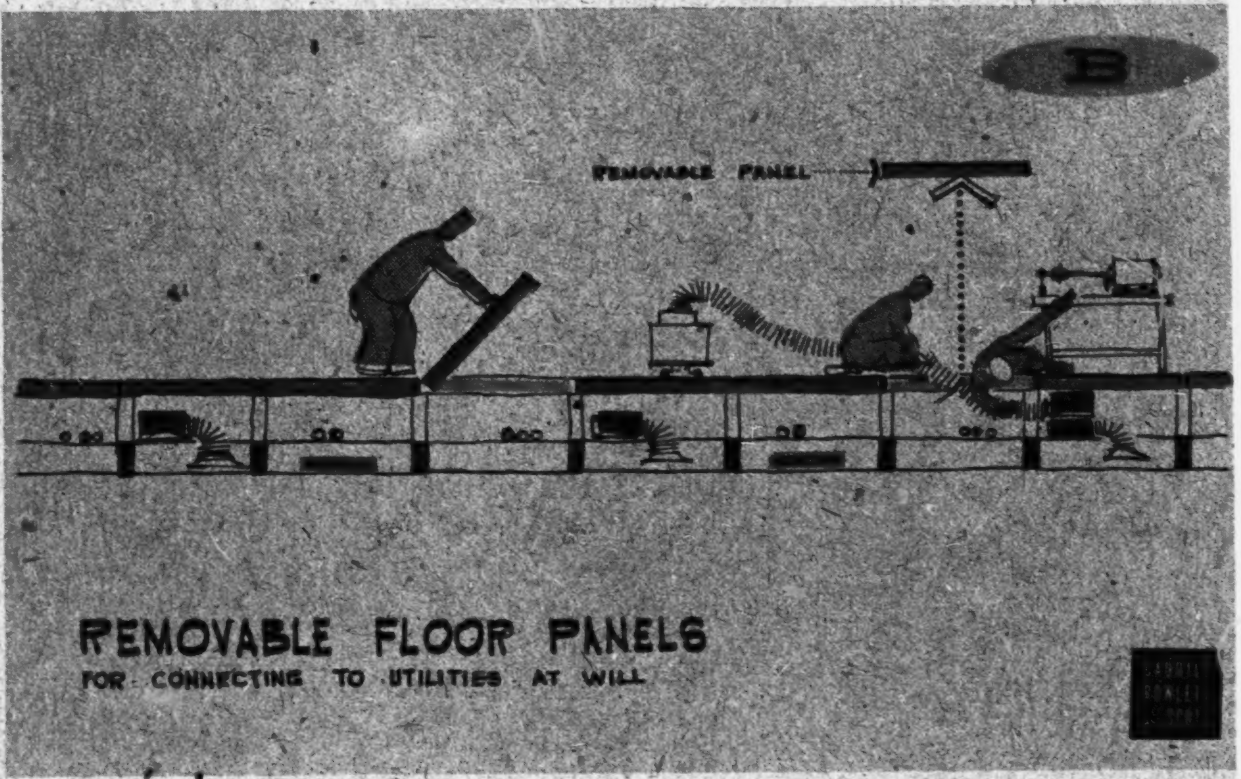
UNIT COST DOES NOT INCLUDE COST OF BEAMS


DUCTS
DRAINS
UTILITIES

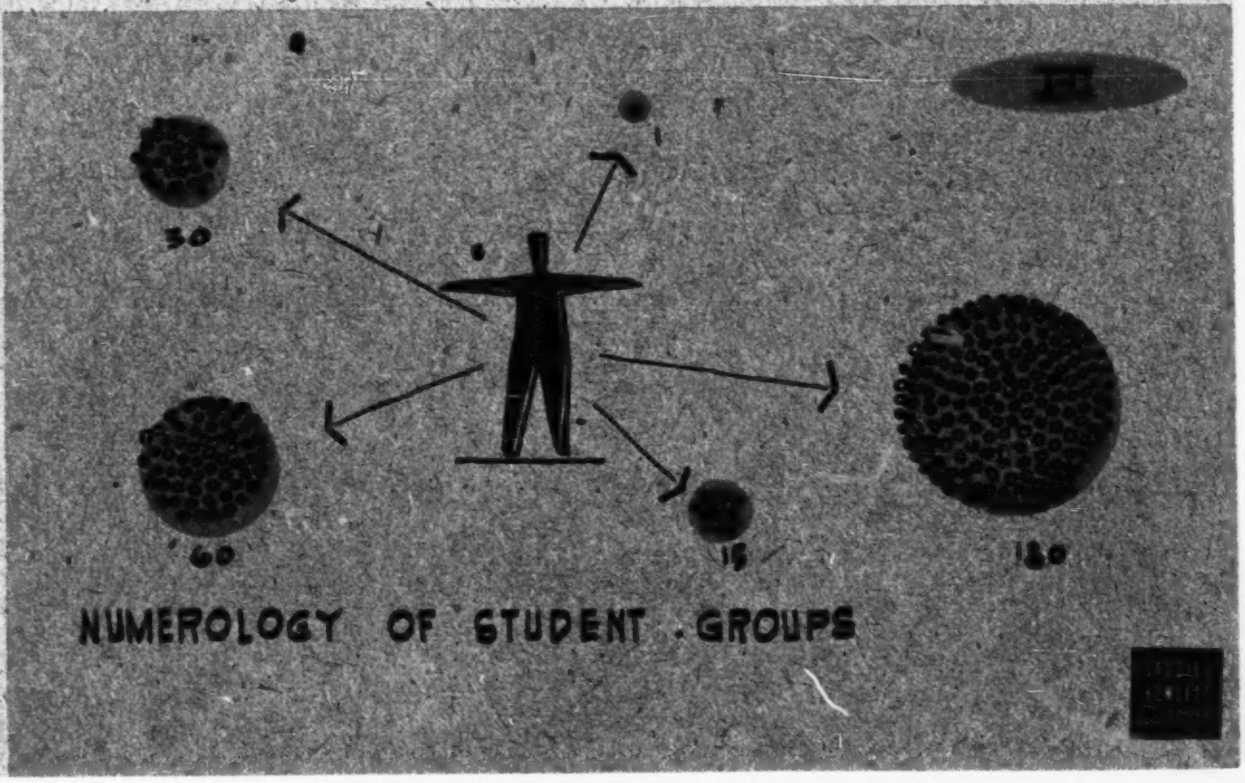
CONCRETE JOISTS SERVE AS SIGHT BAFFLES



3-D TEACHING SPACE


B
REMOVABLE PANEL

REMOVABLE FLOOR PANELS
FOR CONNECTING TO UTILITIES AT WILL



NUMEROLOGY OF STUDENT GROUPS

July 26 - Texas Engineering Experiment Station accumulated test data for sun analysis in Colorado Springs. This data is pertinent to building-orientation and design of sun control techniques.

August 5 - Bill Caudill consulted with architect William Rice of New York City and engaged him as a consultant to the science building team.

August 10 - Herb Paseur met with Wilbur Wright, co-chairman of the Programming-Planning Committee, to make final arrangements for design-squatters trip.

The Squatters or On-The-Spot Design

This brings us to the big week we fondly call the squatters. This is when the CRS team members move to the site and "squat" for a week of night and day design effort. This is when the basic design begins to take form. In the vocabulary of the Beaux Arts-trained architect, this is Charette Week!

On Monday, August 15, the design team of Bill Caudill, Herb Paseur, Frank Lawyer, Bill Lacy, Joe Thomas, and I (David Yarbrough) arrived in Colorado Springs and set up office in a temporary building on the exact location where the new science building will be erected. Then began a week of concentrated program refinement and basic design, with on-the-spot client-architect communication.

A general meeting of 29 of the team members was held to:

Review past activity
Orient themselves on scope of project
Restate basic objectives of program
Examine construction budget and maximum
  amount of space that could be built
  within budget
Outline the future schedule and set
  objectives for work to be accomplished
  during the next five days.

This meeting revealed that the program requirements for all departments were too ambitious for the funds available. Each department was asked to review its space requests and reduce them.

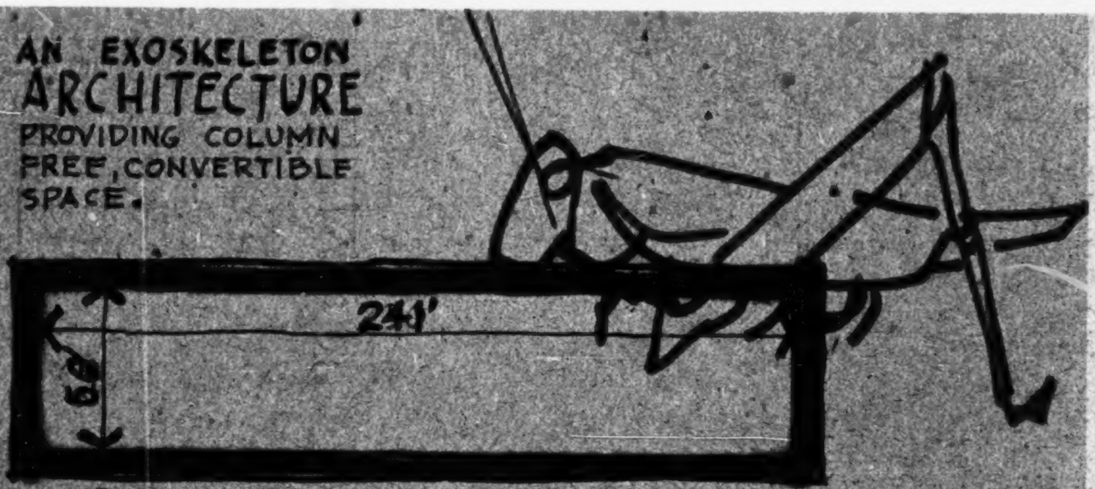
Late into the night and early morning, the science faculty members worked to reduce space needs. The CRS team met meanwhile with Wilbur Wright, Richard Kendrick, Director of Physical Plant, and William Rice, Architectural Consultant, and probed deeper into the paramount elements of one of the basic program concepts - flexibility, how to locate and route major utilities and structural systems. The solutions of building maintenance problems as related to utilities, were discussed.

William Rice presented several significant, existing college science building projects for evaluation. These projects were viewed objectively for determining the good and bad of certain proposed concepts of utility distribution systems in our own project.

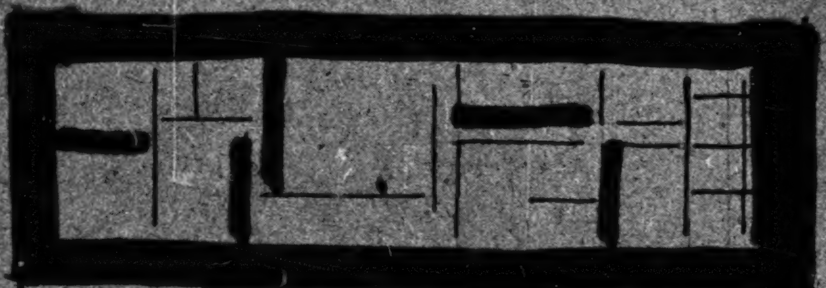
On Tuesday, CRS team members split up to meet with faculty members and obtain additional detailed program information, together with the reduced space requirements. Then came the sketches.

AN EXOSKELETON ARCHITECTURE

PROVIDING COLUMN FREE, CONVERTIBLE SPACE.

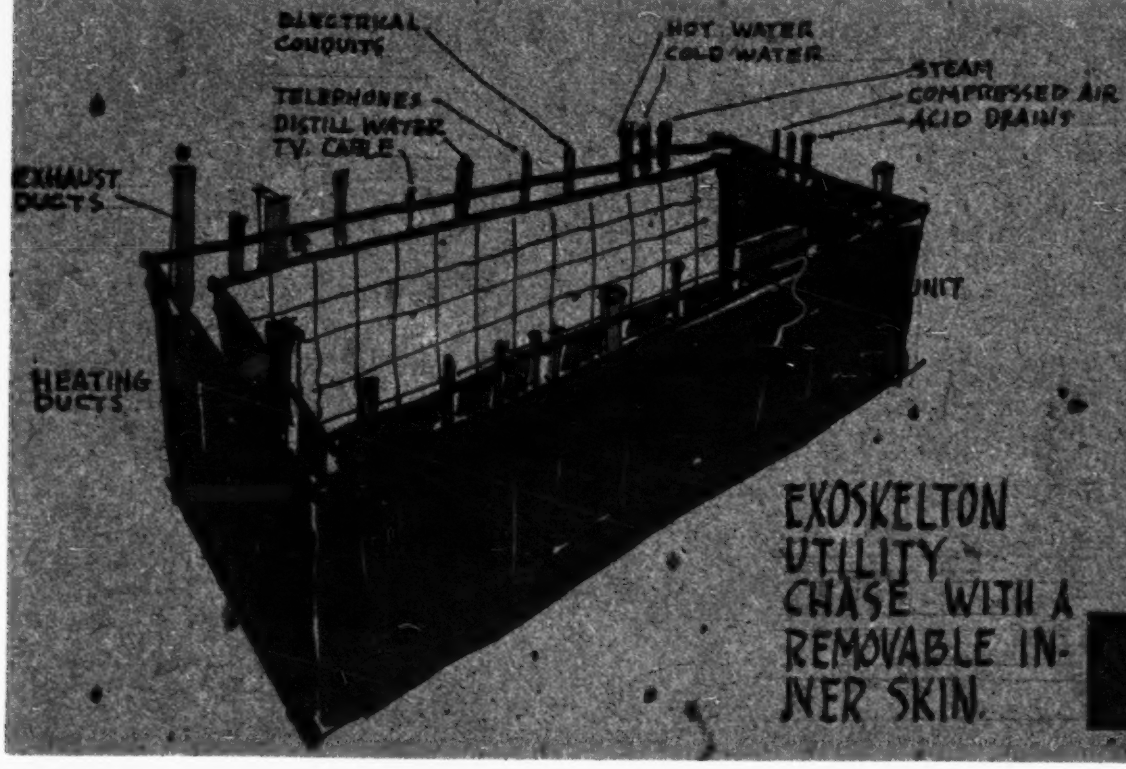


THE [redacted] OR DERMIS CONTAINS THE BONES---IN THIS CASE CONCRETE--PLUS OVER A DOZEN SYSTEMS SUCH AS HEATING, LIGHTING, VENTILATION, GAS, POWER, SCIENCE UTILITIES.

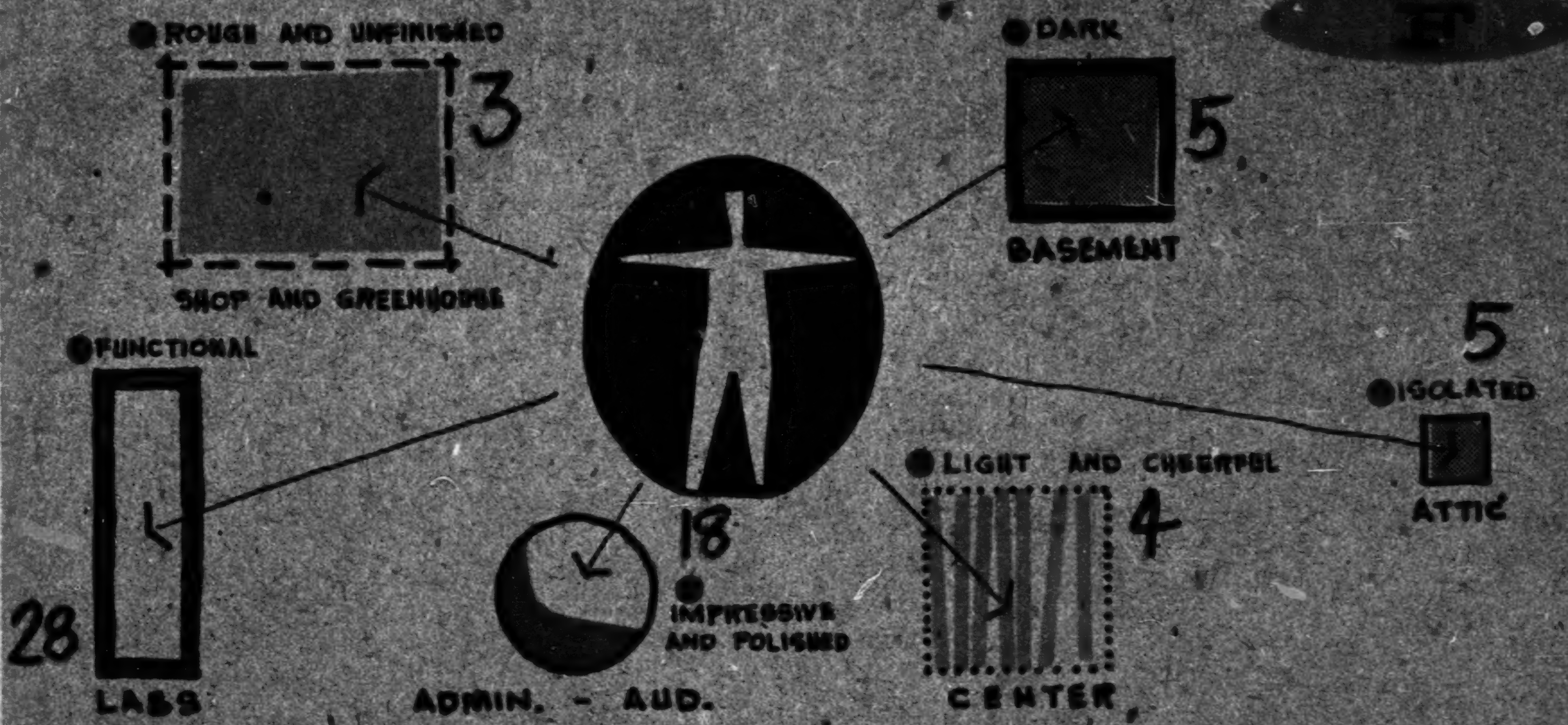


THE SKIN FUNCTIONS AS A PHERIPHERAL UTILITY CHASE FOR BOTH VERTICAL AND HORIZONTAL RUNS. "THIS ARRANGEMENTS OF PARTITIONS AND EQUIPMENT WITH A MINIMUM OF UTILITIES EXPOSED ON CEILING

→ PERMITS ENUMERABLE

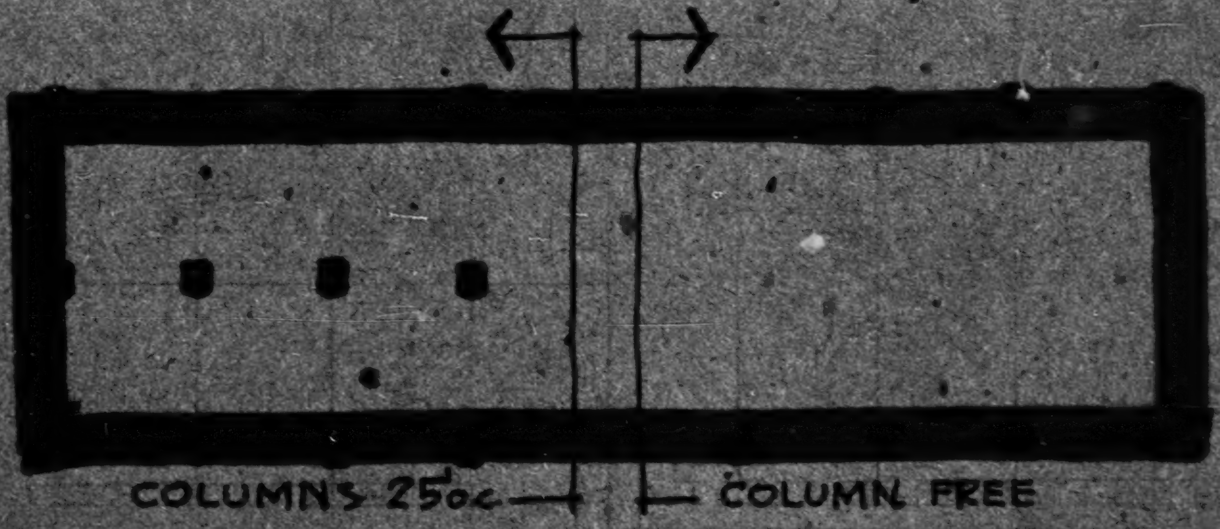

ELECTRICAL CONDUITS
HOT WATER
COLD WATER
STEAM
COMPRESSED AIR
ACID DRAINS
TELEPHONES
DISTILL WATER
T.V. CABLE
EXHAUST DUCTS
UNIT
HEATING DUCTS

EXOSKELTON UTILITY CHASE WITH A REMOVABLE INNER SKIN.


ROUGH AND UNFINISHED
3
SHOP AND GREENHOUSE
DARK
5
BASEMENT
5
ISOLATED
ATTIC
FUNCTIONAL
28
LABS
18
IMPRESSIVE AND POLISHED
ADMIN. - AUD.
LIGHT AND CHEERFUL
4
CENTER

MANY KINDS OF ATMOSPHERE AREAS

CAUDILL ROWLETT & SCOTT


COLUMNS 25oc
COLUMN FREE

TO OBTAIN COLUMN FREE SPACE WE SHALL PAY A PREMIUM OF NO MORE THAN

15¢ PER SQ. FOOT

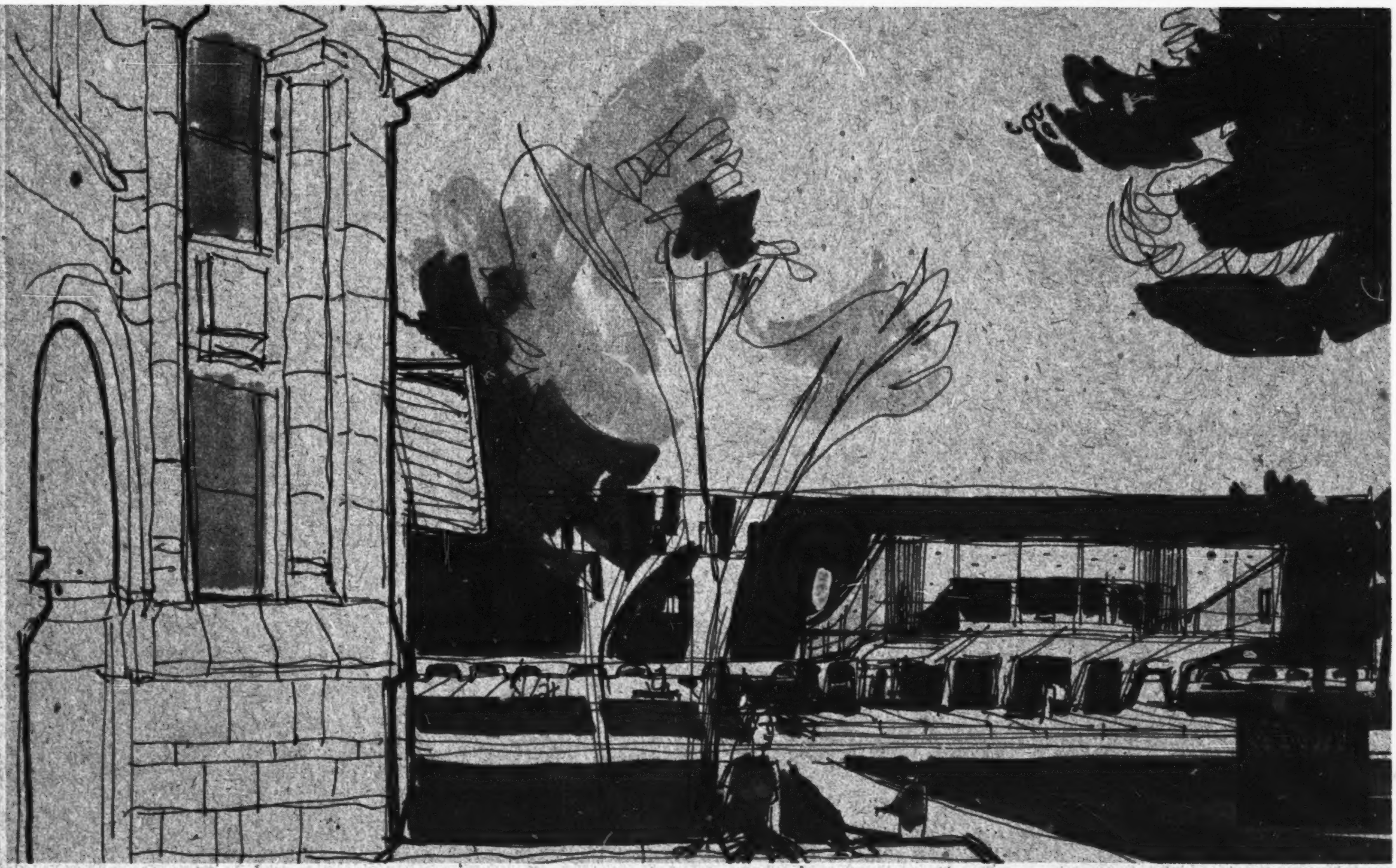
BASED ON PRESTRESSED CONCRETE

CRS BEGAN TRANSLATING SP CE NEEDS AND RELATIONSHIPS INTO FLOOR PLAN DIAGRAMS. BUILDING SECTION STUDIES WERE MADE FOR INTEGRATION OF FLEXIBLE, LOW-COST, UTILITIES DISTRIBUTION AND STRUCTURAL SYSTEMS.

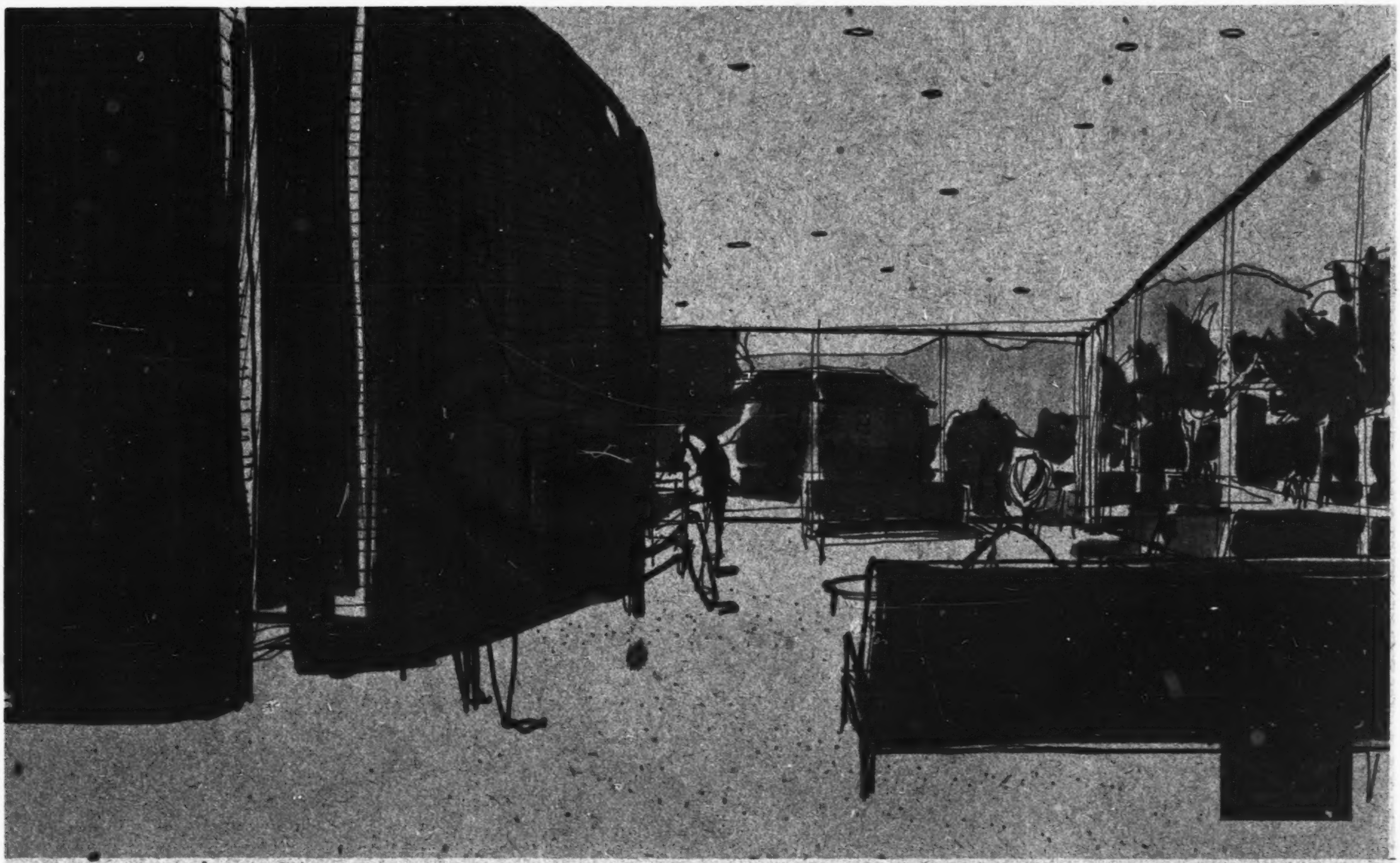
ON WEDNESDAY, CRS REVIEWED PRELIMINARY FLOOR PLAN STUDIES WITH THE FACULTY, NOTING CRITICISMS AND SUGGESTIONS. THE PROFESSORS WERE NOT TIMID WITH THEIR SUGGESTIONS OR CRITICISMS. IN THE AFTERNOON, CRS MADE REVISIONS IN PLANS AS A RESULT OF MORNING CONFERENCES WITH THE FACULTY. WE WORKED UNTIL EARLY MORNING.

ON THURSDAY, ALL PLANS WERE REFINED AND CONCLUDED. MORE FACULTY CRITICISMS WERE RECEIVED AND ACKNOWLEDGED. PERSPECTIVE SKETCHES, ANALYSIS CARDS, AND FINAL PRELIMINARY PLAN AND SECTION DRAWINGS WERE PREPARED FOR PRESENTATION TO TRUSTEES, ADMINISTRATION, AND STAFF. EXCEPT FOR BILL CAUDILL, WHO WENT HOME AT 1:00 A.M., WE WORKED ALMOST ALL NIGHT. CAUDILL IS GETTING TO BE A SISSY.

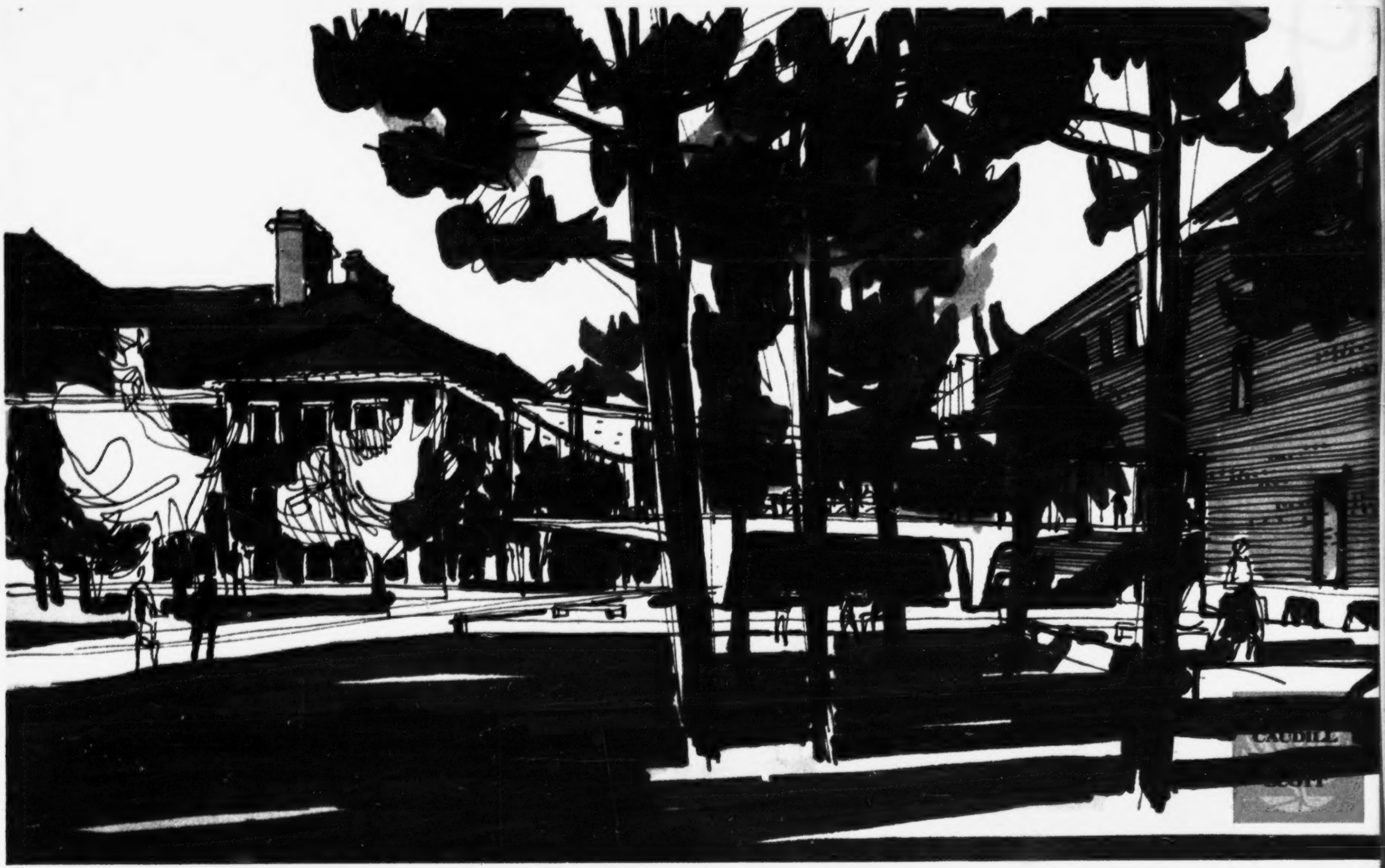
ON FRIDAY MORNING, A FORMAL PRESENTATION OF PRELIMINARY PLANS WAS MADE TO THE TOTAL TEAM GROUP. FOLLOWING ARE SOME OF THE SKETCHES MADE DURING THE WEEK AND PRESENTED DURING THE FRIDAY MORNING SESSION.



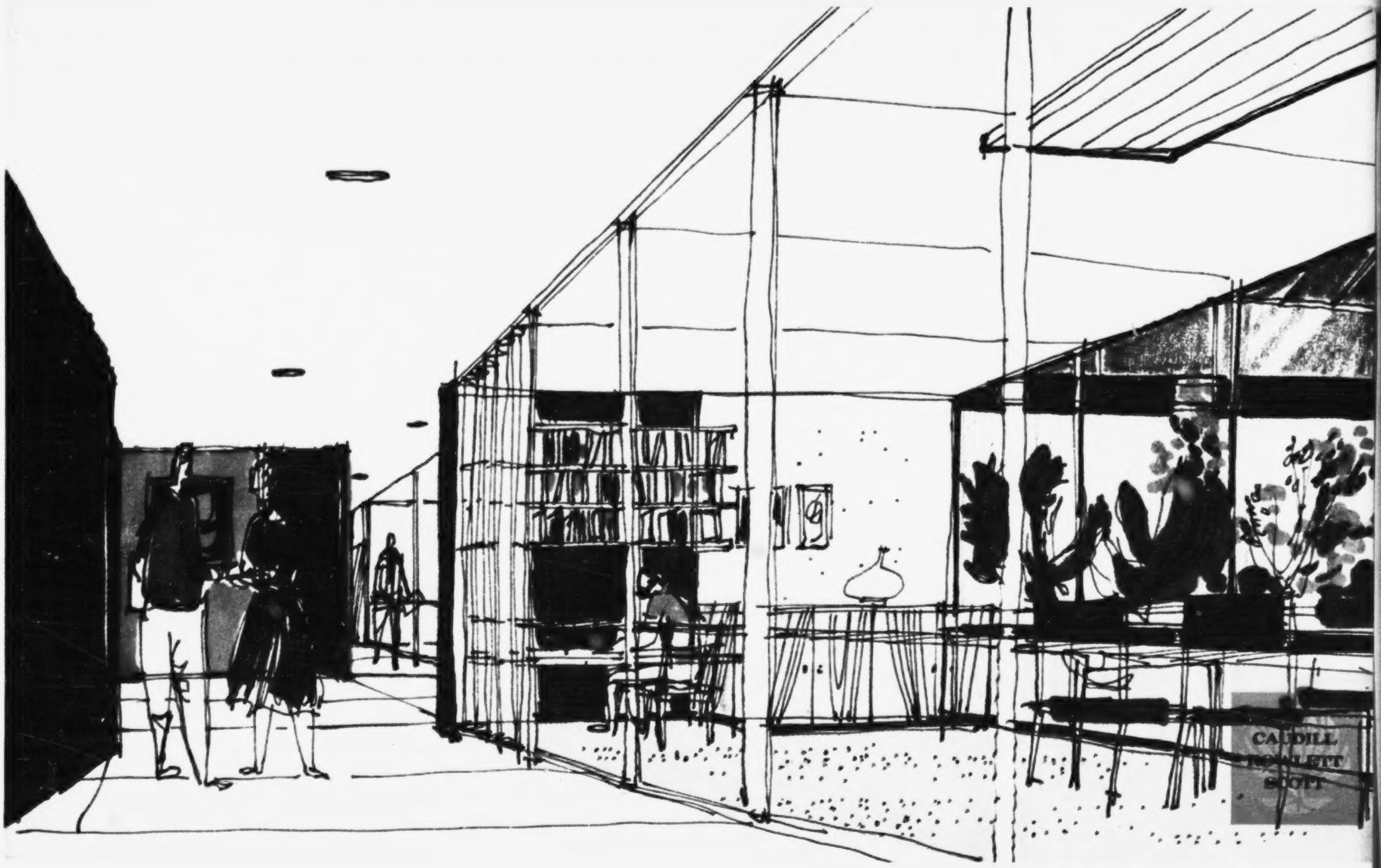
THIS IS A VIEW OF THE PROPOSED NEW SCIENCE BUILDING LOOKING EAST. THE STONE BUILDING ON THE LEFT IS PALMER HALL. NEW OLIN HALL WILL TERMINATE THE VISTA AND WILL HELP TO UNIFY AND COMPLETE THE QUADRANGLE.



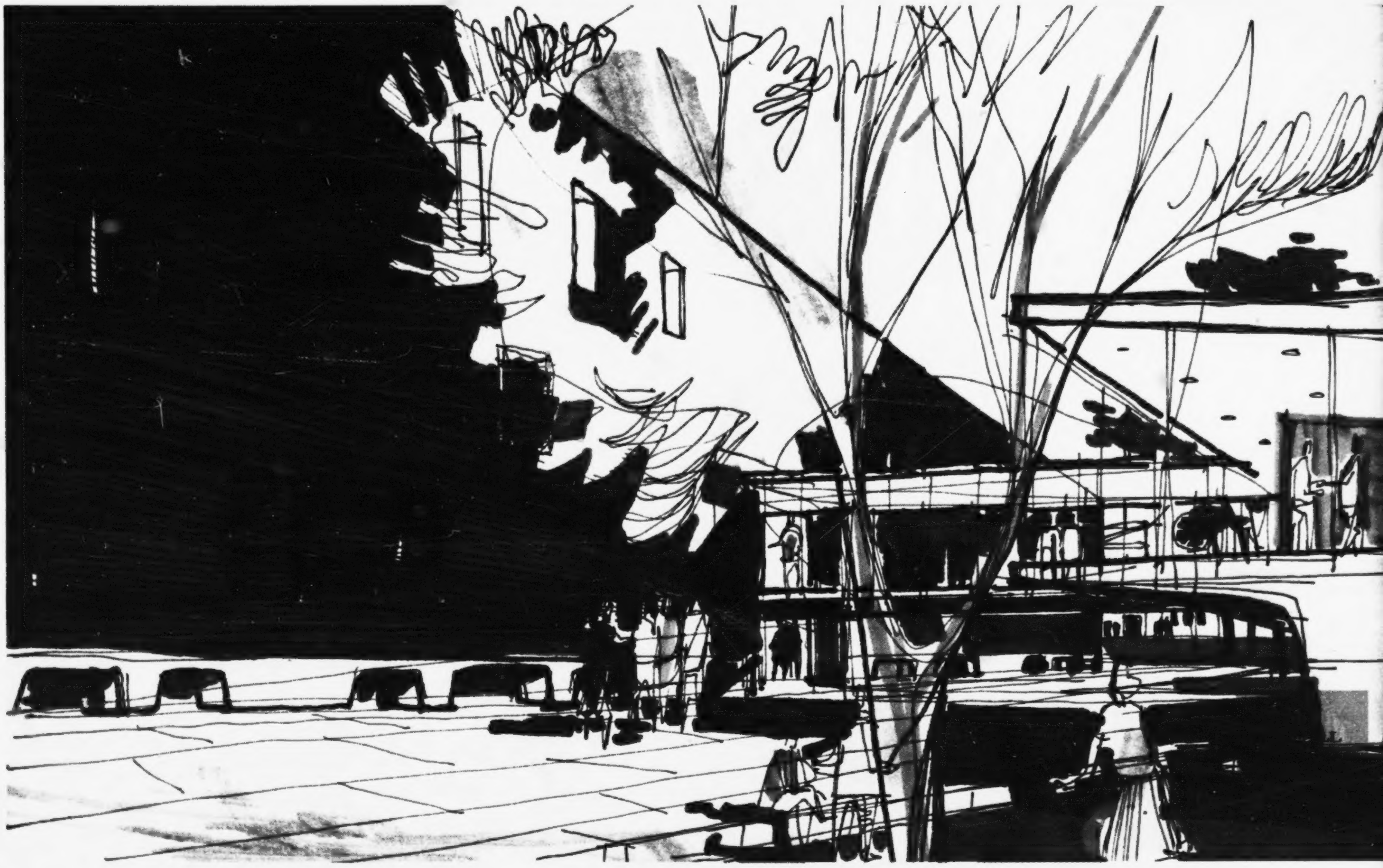
OLIN HALL IS BUILT NOT ONLY FOR SCIENTISTS AND SCIENCE MAJORS, BUT OTHER SCHOLARS AND INTERESTED PEOPLE AS WELL. AS THIS SKETCH SHOWS, THE COMMON FACILITIES INVITE THE PUBLIC TO THE BUILDING WITH ITS OPEN-TYPE SEMINAR-LOUNGE, WHICH "LOOKS IN" AS WELL AS "LOOKS OUT" TO THE MAGNIFICENT VIEW OF PIKES PEAK AND THE ROCKIES.



The two wings are connected at two levels - - the lower ground level and a level, midpoint between the first and second floors. Note the covered bridge, which makes the upper connection. The wing (right) houses the Common Facilities such as the large science lecture room, administration offices, seminar rooms, and lounge. Other spaces in the Common Facilities are on the lower ground level connected by a tunnel not shown in this sketch.

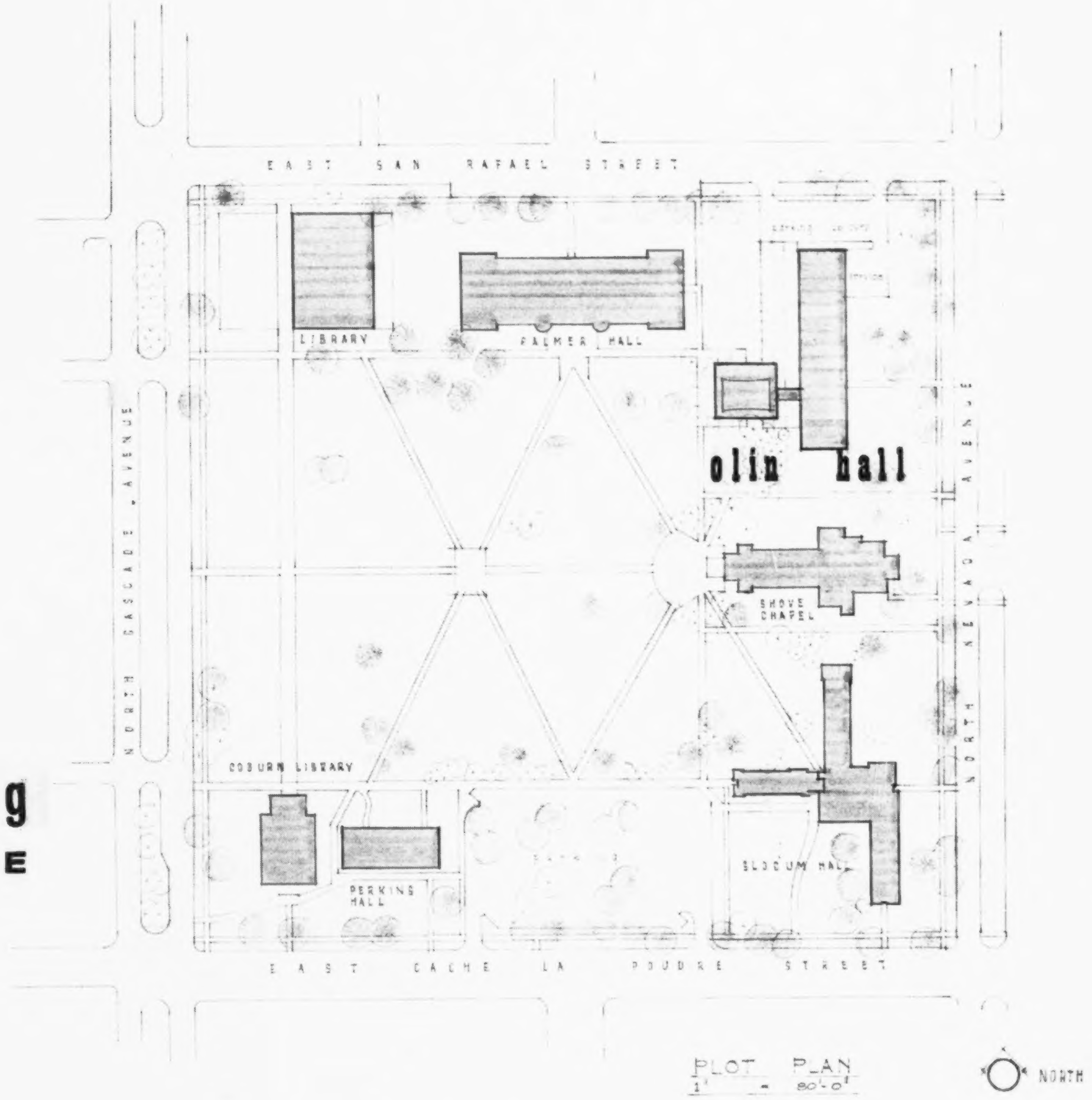


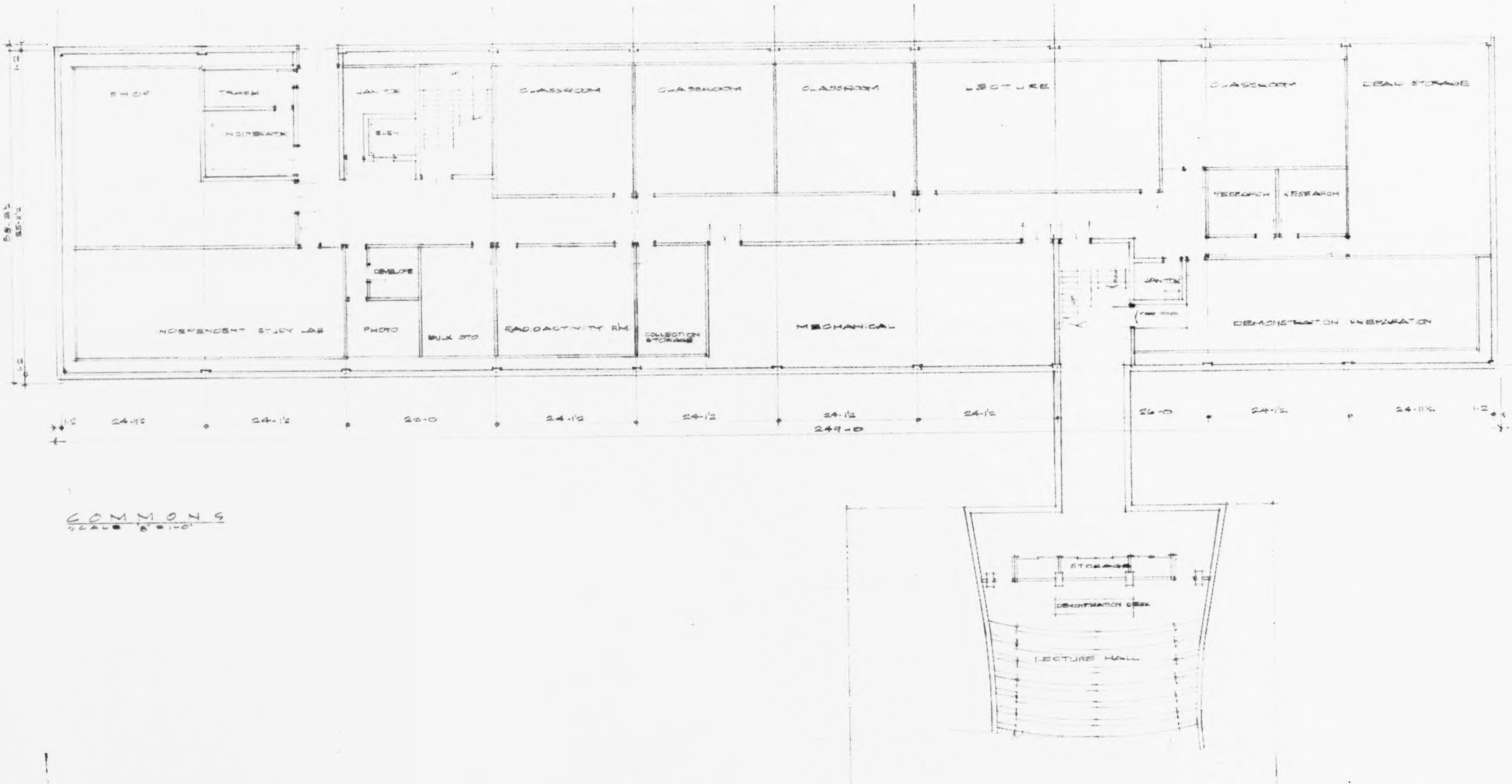
STUDENTS TAKING THE BIOLOGICAL SCIENCES WILL ENJOY THE STIMULATING ENVIRONMENT OF THIS SEMINAR-LIBRARY. NOTE THE GREENHOUSE (RIGHT) WHICH GIVES THIS INTERIOR SPACE AN "OUTSIDE FEELING." HERE IS A MARRIAGE OF BEAUTY AND FUNCTION.



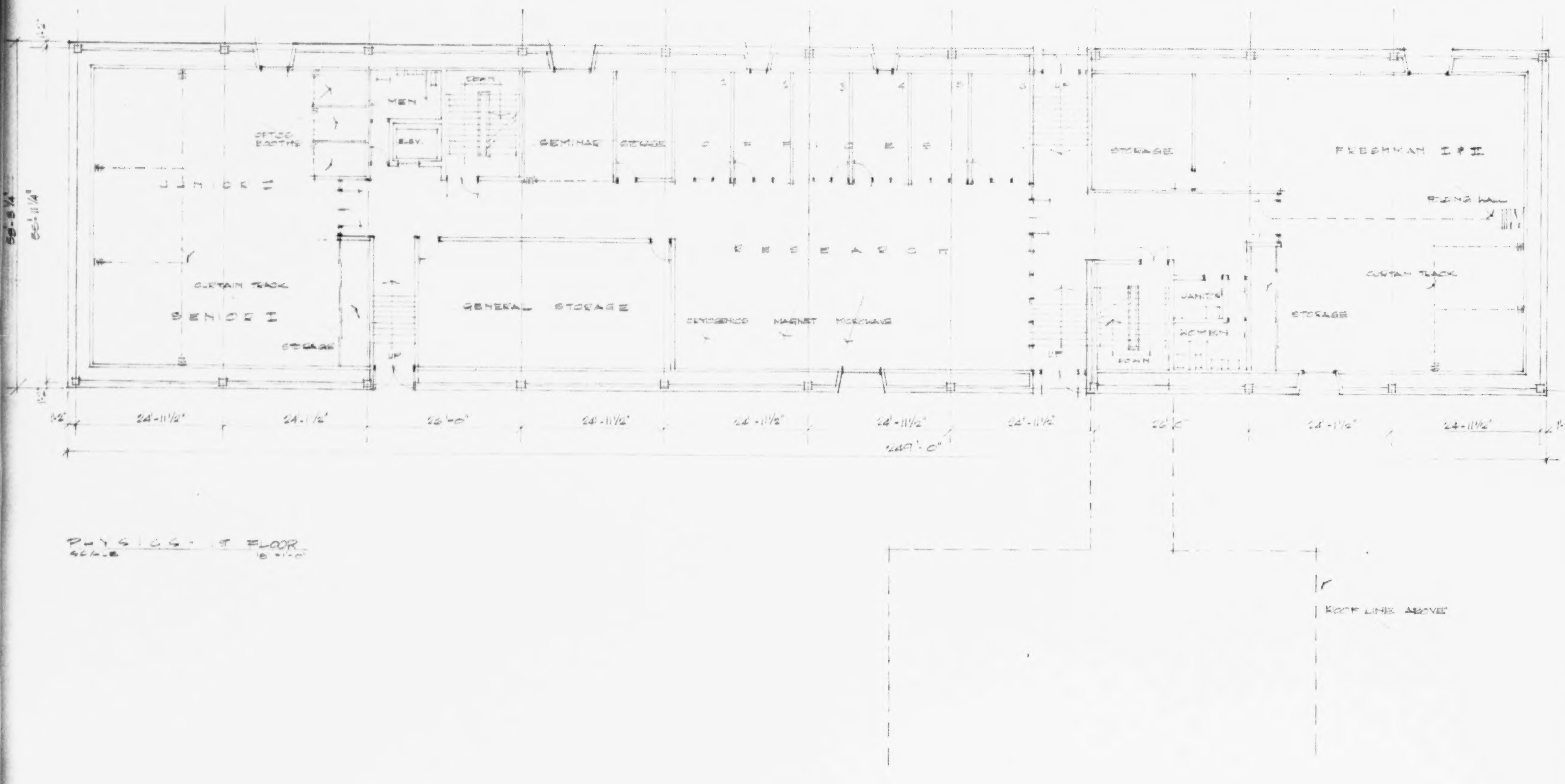
THIS IS A VIEW OF PROPOSED OLIN HALL FACING NORTH. THE GLASS-CONCRETE STRUCTURE RECALLS THE CHARACTER OF THE NEW LIBRARY. THE HEAVY MASONRY WING (RIGHT) IS CONSISTENT WITH THE FEELING OF PERMANENCY OF PALMER HALL (LEFT).

science building
FOR COLORADO COLLEGE

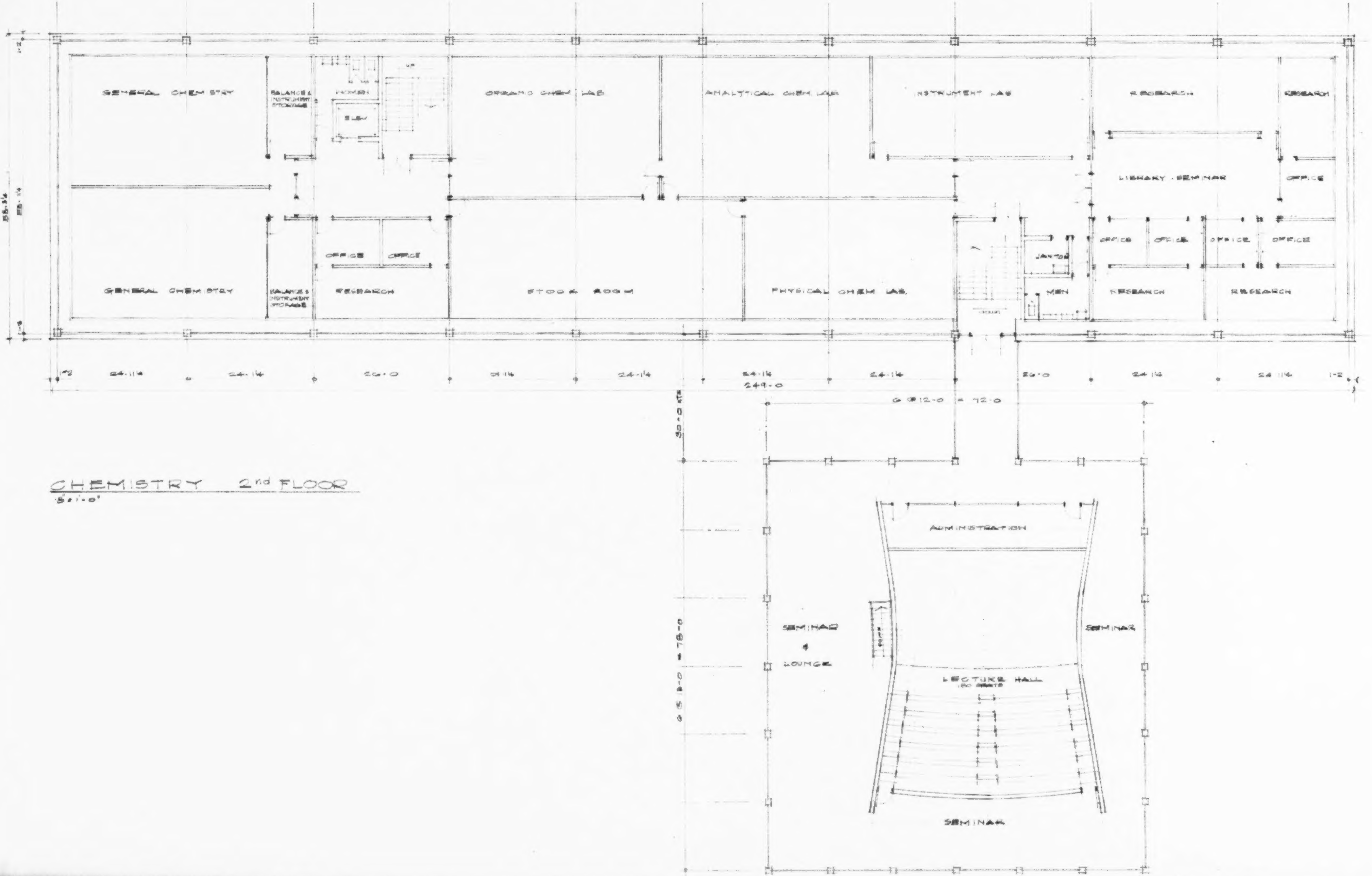

EAST SAN RAFAEL STREET
LIBRARY
PALMER HALL
olin hall
SHOVE CHAPEL
NORTH NEVADA AVENUE
NORTH CASCADE AVENUE
COBURN LIBRARY
PERKINS HALL
SLOCUM HALL
EAST CACHE LA POUDRE STREET
PLOT PLAN
1" = 80'-0"
NORTH


SHOP
TRASH
INCINERATOR
JAN TOR
ELEV
CLASSROOM
CLASSROOM
CLASSROOM
LECTURE
CLASSROOM
DEAD STORAGE
RESEARCH
RESEARCH
JAN TOR
DEVELOPE
INDEPENDENT STUDY LAB
PHOTO
BULK STO
RADIOACTIVITY RM
COLLECTION STORAGE
MECHANICAL
DEMONSTRATION PREPARATION
STORAGE
DEMONSTRATION DESK
LECTURE HALL
58-3½
55-1½
1-2
1-2
1-2
24-11½
24-1½
20-0
24-1½
24-1½
24-1½
24-1½
26-0
24-1½
24-11½
1-2
249-0

COMMONS
SCALE 1/8" = 1'-0"

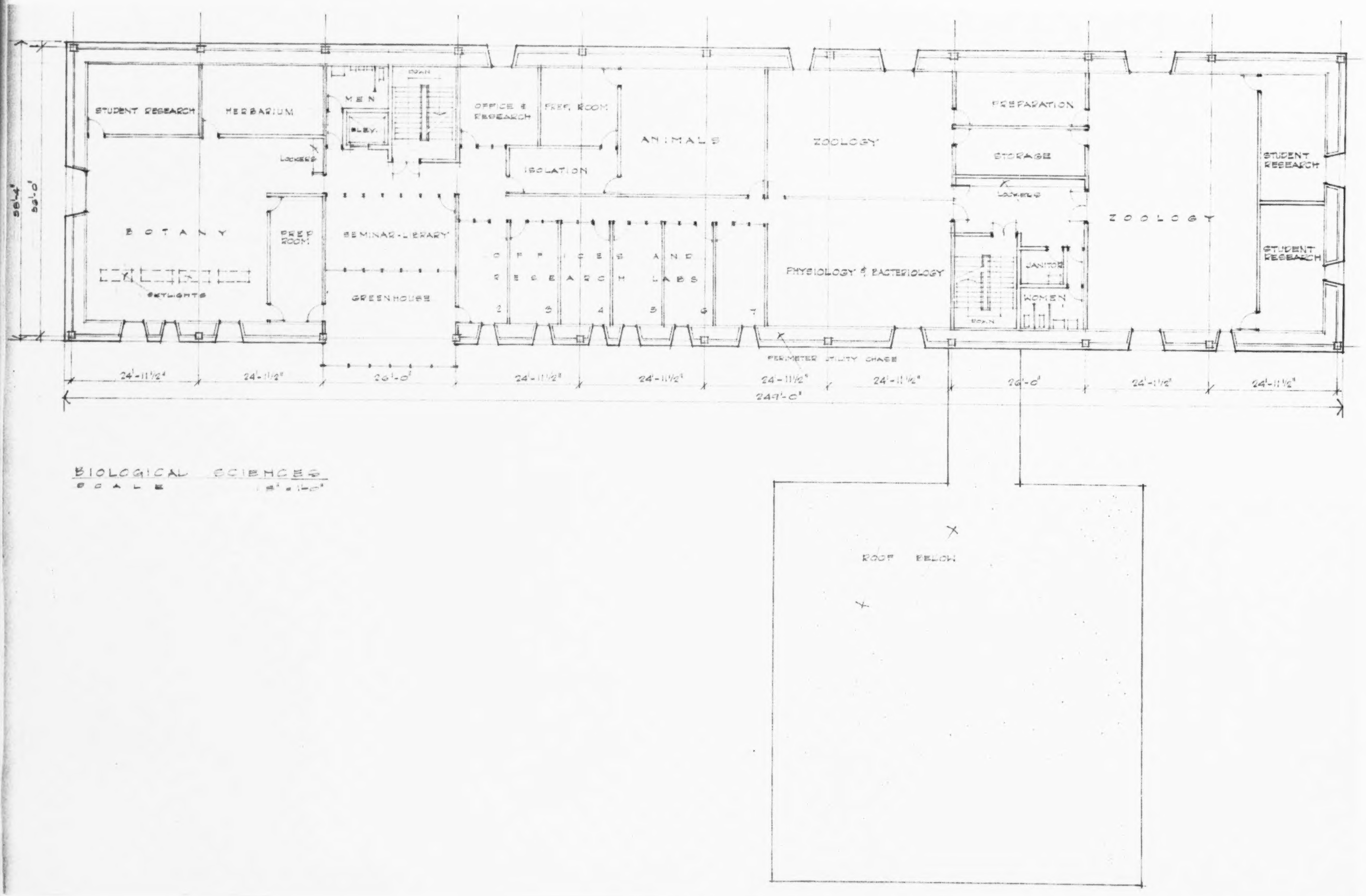

JUNIOR I
OPTICS BOOTHS
MEN
ELEV.
DOWN
SEMINAR
STORAGE
OFFICES
1
2
3
4
5
6
UP
STORAGE
FRESHMAN I & II
FILING WALL
CURTAIN TRACK
SENIOR I
STORAGE
UP
GENERAL STORAGE
RESEARCH
CRYOGENICS
MAGNET
MICROWAVE
UP
DOWN
JANITOR
WOMEN
STORAGE
CURTAIN TRACK
1'-2"
24'-11½"
24'-11½"
22'-0"
24'-11½"
24'-11½"
24'-11½"
24'-11½"
22'-0"
24'-11½"
24'-11½"
1'-2"
249'-0"
58'-8¼"
55'-11¼"
1'-2"
1'-2"
ROOF LINE ABOVE

PHYSICS - 1ST FLOOR
SCALE 16" = 1'-0"

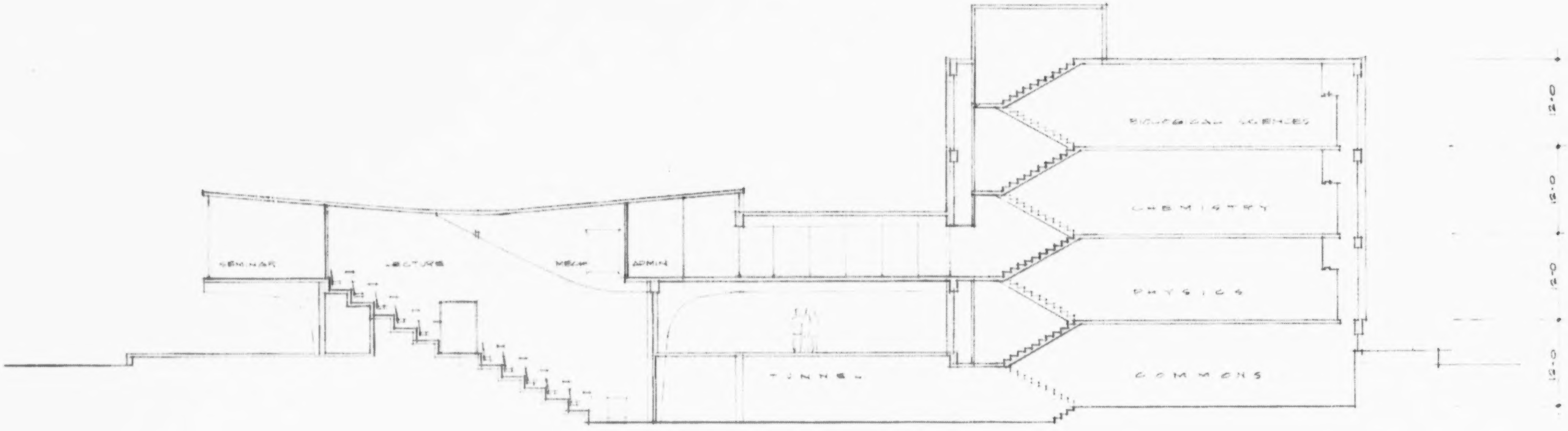

GENERAL CHEMISTRY
BALANCE & INSTRUMENT STORAGE
WOMEN
ELEV
UP
ORGANIC CHEM LAB
ANALYTICAL CHEM LAB
INSTRUMENT LAB
RESEARCH
RESEARCH
LIBRARY - SEMINAR
OFFICE
GENERAL CHEMISTRY
BALANCE & INSTRUMENT STORAGE
OFFICE
OFFICE
RESEARCH
STOCK ROOM
PHYSICAL CHEM LAB
JANITOR
MEN
OFFICE
OFFICE
OFFICE
OFFICE
RESEARCH
RESEARCH
55-3¼
53-1¼
1-2
1-2
24-11¼
24-1¼
26-0
24-1¼
24-1¼
24-1¼
24-1¼
26-0
24-1¼
24-11¼
1-2
249-0
6 @ 12-0 = 72-0
30-0
6 @ 13-0 = 78-0
ADMINISTRATION
SEMINAR & LOUNGE
SEMINAR
LECTURE HALL
160 SEATS
SEMINAR

CHEMISTRY 2nd FLOOR

⅛" = 1'-0"


STUDENT RESEARCH
HERBARIUM
LOCKERS
MEN
ELEV.
DOWN
OFFICE & RESEARCH
PREP. ROOM
ISOLATION
ANIMALS
ZOOLOGY
PREPARATION
STORAGE
LOCKERS
STUDENT RESEARCH
STUDENT RESEARCH
BOTANY
SKYLIGHTS
PREP ROOM
SEMINAR-LIBRARY
GREENHOUSE
OFFICES AND RESEARCH LABS
2
3
4
5
6
7
PHYSIOLOGY & BACTERIOLOGY
JANITOR
WOMEN
DOWN
ZOOLOGY
PERIMETER UTILITY CHASE
58'-4"
53'-0"
24'-11½"
24'-11½"
26'-0"
24'-11½"
24'-11½"
24'-11½"
24'-11½"
26'-0"
24'-11½"
24'-11½"
249'-0"
ROOF BELOW

BIOLOGICAL SCIENCES
SCALE 1/8" = 1'-0"


SEMINAR
LECTURE
MECH
ADMIN
TUNNEL
COMMONS
PHYSICS
CHEMISTRY
BIOLOGICAL SCIENCES
12'-0"
12'-0"
12'-0"
12'-0"

CROSS SECTION

SCALE 8" = 1'-0"

IN AN ATTEMPT TO EVALUATE WHAT WE HAD DONE DURING THE WEEK OF ON-THE-SPOT DESIGNING, WE, AS A TOTAL GROUP, ASKED OURSELVES THE FOLLOWING QUESTIONS:

1. DO WE HAVE A GENERIC SOLUTION?

2. HAS OLIN HALL BEEN DESIGNED FOR SCIENCE CHANGES? CAN THE BUILDING BE ADAPTED TO ALMOST ANY SCIENCE PROGRAM? AND CAN IT GROW WITHOUT GROWING PAINS?

3. HAS OLIN HALL BEEN DESIGNED FOR THE REGION? IS THE ARCHITECTURE INDIGENOUS TO THE AREA? WAS ARCHITECTURAL ECOLOGY A SALIENT CONSIDERATION?

4. HAS OLIN HALL BEEN DESIGNED FOR ECONOMY? WILL IT DO A GOOD JOB TO HELP THE COLORADO COLLEGE SCHOLARS AND OTHERS EXPAND THEIR KNOWLEDGE AND INTEREST IN SCIENCE? AND IF SO, WILL IT DO IT AT A RELATIVELY LOW COST?

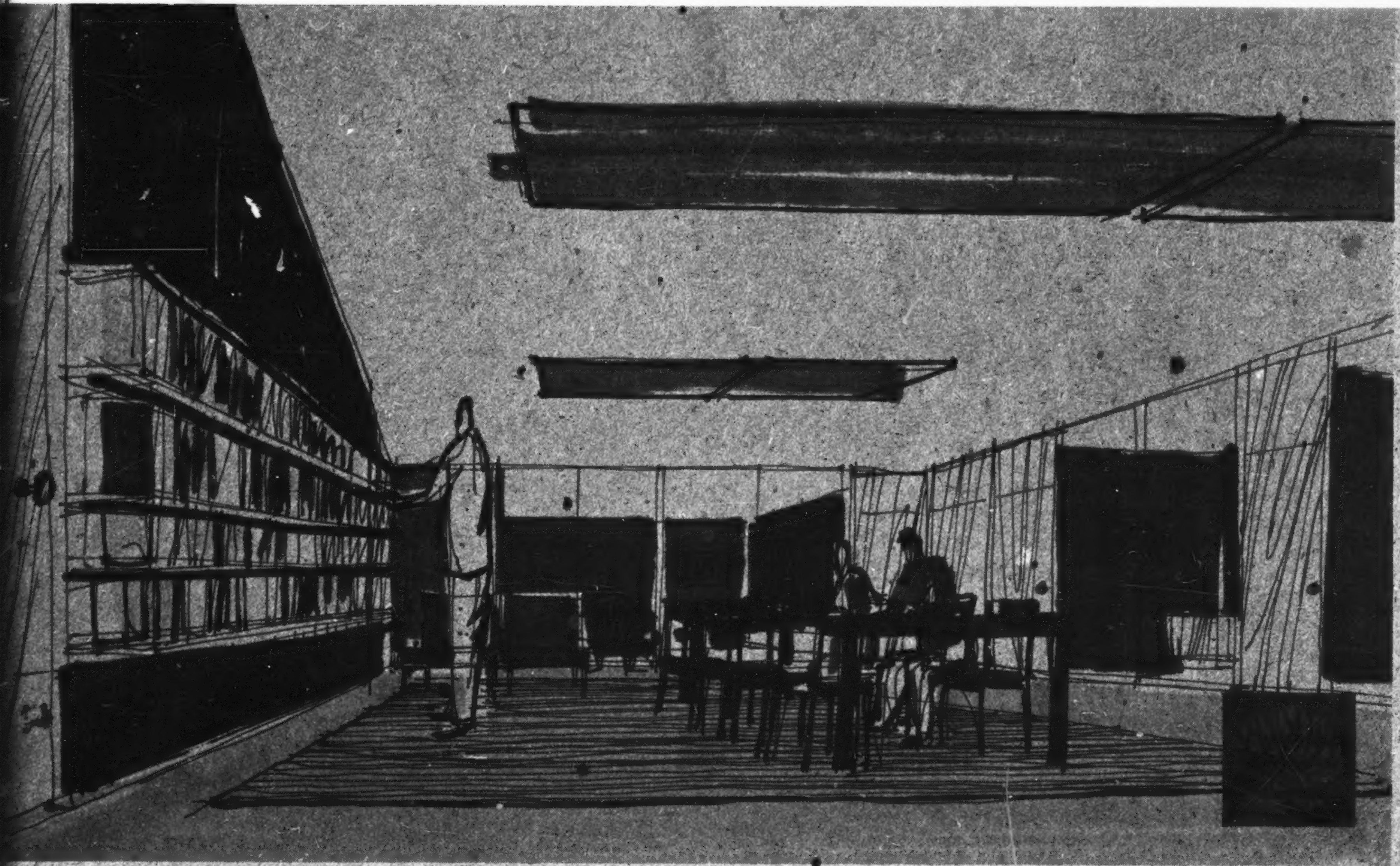
5. HAS OLIN HALL BEEN DESIGNED FOR PEOPLE? WILL IT HELP STUDENTS, PROFESSORS, AND LAYMEN SEEK SCIENTIFIC KNOWLEDGE WITH CONVENIENCE AND WITH COMFORT?

6. HAS OLIN HALL BEEN DESIGNED FOR BEAUTY? DOES IT BELONG TO THE QUADRANGLE? IS IT THE KIND OF BUILDING THAT WILL "ATTRACT NON-SCIENTISTS"? DOES IT HAVE A FEELING OF LONG LIFE THAT CHARACTERIZES PALMER HALL AND SHOVE CHAPEL?

7. HAS OLIN HALL BEEN DESIGNED FOR COLORADO COLLEGE? DOES IT PRESERVE AND ENCOURAGE THE TRADITIONAL STUDENT-PROFESSOR RELATIONSHIP? DOES IT EXPRESS THE VARIANT INDIVIDUALISM THAT CHARACTERIZES A LIBERAL ARTS COLLEGE? IS IT "CLEAR, UNEQUIVOCAL, FORWARD-LOOKING, IMAGINATIVE, AND AT THE SAME TIME HUMBLE"?

AS A GROUP, WE FELT WE HAD POSITIVE ANSWERS TO THESE QUESTIONS. THIS SEEMED TO BE AFFIRMED WHEN THE ARCHITECTS RECEIVED THE ENTHUSIASTIC APPROVAL OF THE BOARD OF TRUSTEES AND WERE INSTRUCTED TO PROCEED WITH MORE DETAILED PLANS AND OUTLINED SPECIFICATIONS.

FIRDAY AFTERNOON, THE CRS TEAM, RICHARD KENDRICK, AND WILBUR WRIGHT MET WITH WALT KUENNING AND DIETZ LUSK, REPRESENTATIVES OF THE LOCAL CODES AND ORDINANCES FOR BUILDING CONSTRUCTION TO SEEK THEIR COUNSEL RELATIVE TO CODE REQUIREMENTS.



WITHIN THE UNFINISHED, FUNCTIONAL, COLUMN-FREE SPACE OF THE LABORATORY WING, "FINISHED ISLANDS," SUCH AS THE SEMINAR-LIBRARY ROOM FOR CHEMISTRY STUDENTS, ARE SCATTERED THROUGHOUT THE BUILDING TO PROVIDE EFFICIENT AND VARIED LEARNING ENVIRONMENTS.

Kuenning and Lusk had attended the formal presentation of plans a few hours earlier and were, consequently, in an excellent position to understand the proposed solution and reasons predicating it. Certain features of the solution required code interpretation. Their participation at the presentation helped tremendously in working out problems with code implications. Some suggestions by them actually took the form of design solutions.

THE WORK AHEAD

Immediately following the meeting with code officials, the CRS team departed for Houston to carry the project to its next phase of completion. Meanwhile, the faculty is preparing more detailed program data, such as equipment inventory, for consideration in the next phase of design development.

There will be many more scheduled meetings between CRS and the College staff throughout the period of developing final plans and specifications. The events described above present a brief sketch of how a team effort functions, the pace of activity possible and the results achieved.

SUMMARY

The team approach is not confined to problem-solving alone. First the problems must be identified. We believe this is best done by team action. Only when the true problems are exposed and honestly solved does a great architecture emerge to stand the test of time.

appendix A

The Team Roster

THE COLORADO COLLEGE:

Board of Trustees

Robert S. McIlvaine	Chairman
Armin B. Barney	Vice Chairman
Robert L. Spurgeon	Secretary
Louis T. Benezet	President of the College
Judge William S. Jackson	
Arthur G. Sharp	
Ben S. Wendelken	
Galen F. Broyles	
James W. Austin	
Edwards K. Gaylord	
Donald C. McCreery	
Russell T. Tutt	Chairman of Building-Grounds Committee of Board
Mrs. Robley S. Brannon	
Robert A. Burghart	
George W. Liljestrom	
H. Chase Stone	
Harold C. Harmon	
Robert W. Hendee	
George L. Schlessman	

Administrative Staff

Louis T. Benezet	President
W. Robert Brossman	Vice President
Robert W. Broughton	Vice President and Business Manager
Richard A. Kendrick	Director of Physical Plant
H. Edwin Mathias	Associate Dean of the College, Director of Student Aid and Placement
Lloyd E. Worner	Dean of the College

The Faculty

Otis A. Barnes	Professor of Chemistry
Richard G. Beidleman	Associate Professor of Zoology
Nancy Bender	Secretary of Committee
Paul E. Boucher	Professor of Physics
Robert Z. Brown	Associate Professor of Zoology
William C. Champion	Assistant Professor of Chemistry
Mary Alice Hamilton	Assistant Professor of Zoology
Eldon T. Hitchcock	Assistant Professor of Chemistry
Paul M. Jones (representing Social Sciences of the Campus)	Professor Business Administration and Banking
Lester A. Michel	Professor of Chemistry
Howard M. Olson	Professor of Physics
Charles W. T. Penland	Professor of Botany
Milton K. Snyder	Assistant Professor of Chemistry
Robert M. Stabler	Professor of Zoology
Wilbur H. Wright	Associate Professor of Physics

CAUDILL, ROWLETT, AND SCOTT

C. Herbert Paseur, Architect	Project Architect
William W. Caudill, Architect	Project Designer
Joe B. Thomas, Engineer	Head, Electrical-Mechanical Section
Frank D. Lawyer, Architect	Head Design Section
Bill N. Lacy	Designer
David B. Yarbrough, Architect	Head Design Development Section

CONSULTANTS

William M. Rice, Architect	Special Architectural Consultant, co-author of a research study of new college Physics Buildings sponsored by the Educational Facilities Laboratory, Inc., New York City, N. Y.

B

RECD. MPC JUN 3 1960

THE COLORADO COLLEGE
COLORADO SPRINGS

June 1, 1960

Mr. William Caudill
Caudill, Rowlett and Scott
3400 Montrose Boulevard
Houston, 6 Texas

Dear Bill:

Thank you for coming with your associates and helping us give our Olin Foundation benefactors an optimistic reception. It helped get the whole project off the ground.

We are asking Dr. Wilbur Wright, Associate Professor of Physics away this year on research leave at Stanford, to be chairman of the program planning for the science building. His co-chairman will be Professor John Krahenbuehl, who teaches our basic engineering - a man with national awards as a lighting engineer. These men will use our science division as a sounding board committee and will work throughout the summer to dream up the best science building program for Colorado College for the next quarter century. They will of course want to be in early contact with you and John Rowlett; but perhaps you will be patient with us if we back off long enough to come up with something you can really use. This has proved most happy in the case of the library and the S.O.M. people.

We appreciate your advance leads on a science consultant. We likewise are searching and probably our first conference should be on that subject. As I said, I think he should be our man and not yours, although he should be the kind of man who can work equally well with both. I think his first job is to help us get this program down on paper and then to follow through with you as you evolve it into a living and functioning building.

How do I see this science building? I see it first of all as something to express science in the liberal arts college: clear, unequivocal, honest, forward-looking, imaginative and at the same time humble about its place in cosmic knowledge, which can only be expressed in terms of the philosophy of all knowledge working together. It should be the kind of building which attracts non-scientists: the greatest job of contemporary America is not to educate more scientists, but more intelligent scientists and more intelligent laymen who understand something about what science is. Our job will always be quantitatively more concerned with the non-science major, even though the science major will occupy the majority of space and time, week in and week out in the science building.

The science teacher at Colorado College is here because he is a scientist who loves to teach, in surroundings that are uplifting to him. He is devoted to his students, but at the same time he doesn't fall asleep professionally. He must have space to do at least some research in his own field and to keep up with the frontiers of the teaching of his subject matter. When he does his research he ought not to be encouraged to feel like a medieval alchemist shrinking away into some obscure cell unseen by all eyes. One of the greatest things about having research going on in an undergraduate liberal arts college is that the students can see that research is nothing mysterious and that it is fun. Therefore, the research labs for the professors ought to be as accessible and attractive as they can be persuaded to keep them.

We have a job in this community, as in all communities, to educate the public that science is no dark business and that it is not just what helps build atomic bombs. There ought to be in this building some chance for the public to get closer to what is going on. Of course this refers to our shabby old museum in Palmer Hall also, which we hope may be modernized and refurbished along with this general advancing program.

Lastly (for now), I should like it to be a science building that would attract the rest of the faculty. In fact I have a crazy idea that the place we have been seeking for a Faculty Club might well be located in the science building. It would be easier to attract social scientists and humanists out of their offices into a faculty club room located in the science building than to do it the other way. We might have some trouble justifying the space for this, considering that a million and a half dollars is not going to do any more than it ought to give us the building we need, but I think it is worth thinking about.

Shall look forward to seeing you and your colleagues again soon.

Sincerely,

Louis B

Louis T. Benezet

LTB/vmr

COMMITTEE REPORT

These preliminary notes about Colorado College's new Olin Hall take as their starting point the remarks of President Benezet in his letter of June 1, 1960, to Mr. William Caudill. They are intended to express something of how the science people who will move into the building have been thinking. Since it seemed best at this point to think about the building with as few inhibitions as possible, the thoughts expressed here may well be mutually inconsistent and impractical. Moreover, since this is our first attempt to put things down on paper, the thoughts expressed may be quite incomplete both in detail and concept.

Colorado College's emphasis on education as distinguished from training needs expression in the area of science as in the other areas of knowledge. In this area, as in the others, the process by which the knowledge is obtained and the implications it possesses stand equally important with the knowledge itself. To say that all Colorado College students must have some knowledge of science means that they should be educated in science, not just that they should learn some scientific facts. The programs by which scientific education of all students can be accomplished are not at all fixed. The pedagogical techniques by which one achieves the goal of scientific literacy are in fact being experimented with now. It is only possible to make very general statements about goals and guesses about methods.

The following crude estimates of numbers may be helpful. For a total college enrollment of 1500 (it is now about 1150) divided roughly into 500 freshmen, 400 sophomores, 300 juniors and 300 seniors, one would be concerned with about two-thirds of the average freshman-sophomore enrollment, that is, with about 300 students per year for each of two years, in a projected program for non-majors. If arrangements were made to divide these students' experience into two parts, devoted to descriptive and quantitative science, and if responsibility for these two parts were assumed by, for the first part Geology and Biology and for the second part Physics and Chemistry, then there would be about 450 non-science-majors at a time taking courses in the new building. This compares with a crude estimate of about 450 science and math majors taking one or more courses in the new building at one time. It might be fair to say that nearly two-thirds of the student body would have, at a given time, at least one course in the new building; and that of these, half would be primarily interested in science as a specialty, and half would be primarily interested in science as a part of the experience of an educated individual.

It is useful to invent a sequence of numbers in dealing with the problem of class size. One such sequence is 12, 24, 48, 144. Another is 15, 30, 60, 180. The first of these sequences represents an estimate of "best size" for various kinds of instructional situations. Fluctuations from these optimum figures may occur to the extent of 25% either direction. Allowing for such fluctuations on the high side, one arrives at the second sequence of "maximum sizes" for various instructional situations.

These numbers are not as arbitrary as they appear to be. Many teachers have noticed a rather sharp decrease in the individual attention possible for each student after there are more than 12 to 15, and again after there are more than 24 to 30 in a group. The implications of this kind of numerology for the building are of the following kind. There might be one Lecture Room (capacity 180) centrally located and available to all departments. There probably should be some facilities accommodating 60 students, a great many accommodating 30 and a few accommodating 15. The space implications of such provisions would vary, of course, depending on the nature of the facility.

While there will probably not be any significant future increase in graduate study (of a kind requiring special provision) at Colorado College, there is already a trend toward greater emphasis on individual study and research in the academic program of undergraduate majors. This implies a rather substantial provision for individual work by students either in cubicles or in parts of an "Advanced Lab." Such work ordinarily requires the use of various utilities and good access to equipment and supplies storage rooms.

An important part of the building will be that used for faculty research. A faculty research program serves the following purposes: It allows members of the teaching staff to remain closely involved with the subject matter of their fields--thus stimulating their teaching, it provides an example of self-education (in research) for prospective future scientists to observe, and it presents a true picture for the non-specialists who will enter the building of scientists in action. These faculty research provisions need much the same sort of treatment given the research areas referred to above as for undergraduate research. They should allow use of various utilities and easy access to equipment and supplies storage. These requirements and others (ventilation, perhaps) tend to impose a separation of faculty research facilities from faculty offices, but thought should be given to making the distance between the two kinds of areas easily traversed. In terms of the enrollments estimated above, provision should probably be made for a possible increase in staff numbers from the present 15 to as many as 23.

It is desirable that the new building be usable as a center of science in the community. Moreover, it will be used from time to time as the host building for meetings of scientific societies. Perhaps, in addition to use of classroom and laboratory facilities for these functions, a suite of rooms including an ample lounge (with kitchen facilities) and a few unassigned offices would serve to provide for these activities. Such a suite could serve useful campus functions as well, and might provide a desirable way of linking the building activities with general campus activities.

In general, all the above activities should reflect the fact that science is not done in a vacuum. All activities, research and instructional, classroom and laboratory have as one common goal the destruction of scientific "ivory-towerism" as a stereotype of the scientific context.

The difficulties of architecturally "fitting" a building into the corner between Palmer Hall and Shove Chapel speak for themselves. In addition to the obvious style problems, we can add the following problems.

The building should look easy to enter and uncomplicated to use to the casual passerby. It should harmonize with its surroundings as much as possible, of course, but it should also look to be itself--a unity. It should look to be what it is: an academic science building; and at the same time it should look (and be) unique in a way which will make visitors from other schools say: "Why didn't we think of doing it that way?"

The building should allow for ease of access from the east end of Palmer Hall. Palmer will probably be redone at its east end so as to have an entrance there. Ease of movement between Palmer and Olin will be important both for the students who are going from class to class and for members of the various math and science departments housed in the east end of Palmer and in Olin. A continuity between Palmer and Olin ought to be expressed if only for historical and psychological reasons. Palmer has been the great science building of our past. Connections between kindred disciplines in the two buildings will continue in the future. Important links exist between Physics (in the new building) and Math (in the old) and between Zoology (in the new building) and Psychology (in the old). In utopian terms, the continuity would be expressed by a covered or enclosed connection between the two buildings. This would allow (for example) easy transport of laboratory animals from Zoology to Psychology (building to building) on a cold day.

The building should also express the fact that it is at the northeasterly extreme of the academic campus. It ought to have easy access (in addition to that from Palmer) both from within the campus which it helps to define, and from without. The access from without can be thought of as being of two kinds: that for people who work in the building, and that for townspeople and visiting scientists. Thought should be given to the need for staff and visitor parking in the vicinity of the entrances.

And the building, in addition to not clashing with Shove Chapel and being harmonious with Palmer Hall, should somehow express the fact that it is located in Colorado Springs--with mountains to the west, plains to the east, and a hot, dry, contrasty sun overhead. The Colorado Springs sun casts dark shadows which might play an important part in providing a varying exterior "look." The sunlight itself makes the use of glass in the building very tricky.

The ease of entrance and uncomplicatedness which appeared from the outside should continue as a person enters the building. Just as there was no 'pillars-and-marble-steps' monumentalness outside, so there need be no provision for a railway station sized lobby inside. It may be that a simple central directory would be enough to speed the entering stranger on his way. Or, it might be desirable to have the administrative nerve center of the building (to be discussed below) located centrally near the entrances.

Because of various functional and administrative conveniences, the areas in the building divide themselves naturally into the following four: Biological Sciences, Chemistry, Physics, and Common Services. It is important to keep in mind, however, that there is no clear line between any two of these categories. In fact, an important requirement of the building is that it express the essential unity of the sciences. The most important connections are between Physics and Chemistry, between Chemistry and the Biological Sciences, and between Common Services and the other three categories. If it were practical in a multistory building, the best arrangement might be one in which there were no "1st floor," "2nd floor," and so on, at all. The best arrangement might be one in which the various levels of the building shaded off more or less continuously into one another spirally, step-wise, as one went up the building.

The unity of the building could also be expressed by the use of the Common Services area(s) as a thread of continuity about which (at various levels) the other areas naturally group themselves. This Common Services category includes the following kinds of functions: utility (generator room, compressor room, and so on); common research (radioactive 'hot' room, nuclear resonance room, and so on); common research and instructional (machine shop, stock room, dark room, cold room, and so on); common instructional (Lecture Room, class rooms, and so on); common facilities for campus, town and departments (lounge, kitchen facilities, empty available office space, and so on); common secretarial and administrative (switchboard, central inventory control, mail delivery, building communication nerve center, responsibility for all common building services, and so on).

There is a sense in which the building will be a distribution system. For one thing (a very important thing) it will distribute the many utilities which laboratory sciences need. For another thing, it will distribute people. Careful thought about traffic flow is important not only for maintaining the feeling of uncomplicatedness and accessibility, but also for preventing crowding and confusion at the time of class changes without unduly large provisions (in square feet) for corridor space.

The key word in utilities distribution is 'flexibility.' This means on the one hand for example that in an area where 110 volts D.C. is needed, it should be potentially available everywhere in that area. On the other hand, it means that the central distribution system should be such as to allow, for example, the installation of a 'building vacuum system' in the future without tearing down walls. This desire for flexibility fits with another requirement in the utilities distribution system--ease of maintenance. The core approach to utilities distribution seems indicated, with great provision for future changes in distribution arrangements. Perhaps some sort of 'utilities well' (vertical) would suit the situation.

In ventilation and heating, some of the problems of different kinds of areas are manifest. In Chemistry laboratories there is need of the greatest air turnover generally and for the largest provision for special ventilation

FACILITIES (HOODS). THIS PROBLEM IS PARTICULARLY IMPORTANT IN A BUILDING HOUSING CHEMISTRY WITH OTHER DEPARTMENTS, BECAUSE THE FUMES INVOLVED ARE SOMETIMES CORROSIVE AND WILL SOMETIMES TEND TO DESTROY EXPENSIVE EQUIPMENT USED IN PHYSICS AND BIOLOGY. MOREOVER, THE FUMES, EVEN IF NOT CORROSIVE, MAY BE VERY BAD FOR LABORATORY ANIMALS AND PLANTS IN BIOLOGY. THE AREAS WHICH HOUSE LABORATORY ANIMALS MUST THEMSELVES BE WELL VENTILATED. BUILDING AIR-CONDITIONING IS DESIRABLE, BUT WOULD PRESENT A PROBLEM (AS A CLOSED SYSTEM) UNLESS CAREFUL SPECIAL PROVISION WERE MADE TO PREVENT AIR FROM CHEMISTRY LABORATORIES FROM RECIRCULATING TO OTHER AREAS. THE NEED FOR AIR-CONDITIONING IS PARTICULARLY IMPORTANT IN CERTAIN AREAS OF BOTANY AND ZOOLOGY.

APART FROM HEATING AND VENTILATING FACILITIES, THE LARGEST UTILITIES REQUIREMENT IS THAT OF PHYSICS, NEXT CHEMISTRY AND SMALLEST BIOLOGY.

IN A MULTISTORY STRUCTURE SERVING LABORATORY SCIENCES, AN ELEVATOR FOR DISTRIBUTION OF EQUIPMENT AND SUPPLIES (AS WELL AS FOR USE IN BUILDING MAINTENANCE) SEEMS TO BE A MUST. HEAVY ITEMS ARE USED IN ALL AREAS. THE HEAVIEST LABORATORY TABLES ARE THOSE USED IN CHEMISTRY. THE HEAVIEST CAPITAL EQUIPMENT (TO BE BROUGHT IN OVER THE YEARS AS WELL AS AT THE TIME OF BUILDING OCCUPANCY) IS THAT FOR PHYSICS. HEAVY ITEMS USED IN BIOLOGY ARE CRATES AND BARRELS OF SUPPLIES.

IN EACH OF THE MAIN CATEGORIES THERE IS A PRIORITY LIST OF SUB-AREAS SO FAR AS PLACEMENT WITH RESPECT TO A CENTRAL UTILITIES DISTRIBUTION SYSTEM IS CONCERNED. CLOSEST SHOULD BE THE LABORATORIES, NEXT THE LAB-LECTURE ROOMS, NEXT OFFICES, NEXT CLASS AND SEMINAR ROOMS. THE ONE LARGE LECTURE ROOM PRESENTS A UNIQUE REQUIREMENT FOR UTILITIES IN THAT FLEXIBILITY OF INTERIOR DISTRIBUTION IS NOT NECESSARY THERE.

THE UTILITIES CORE IDEA FOR DISTRIBUTION MIGHT BE ADAPTED IN MAKING A DISTRIBUTION OF PEOPLE TO VARIOUS PARTS OF THE BUILDING. CENTRAL STAIRWAYS UP AND OUTSIDE STAIRWAYS (OR RAMPS) DOWN, OR SOME SUCH, PERHAPS. MAYBE THE REVERSE-OUTSIDE RAMPS UP AND CENTRAL STAIRWAYS DOWN WOULD MAKE THE BUILDING MORE TRANSPARENTLY AVAILABLE TO SOMEONE OUTSIDE.

THE EASIEST WAY TO SUMMARIZE GENERAL THOUGHTS ABOUT THE BUILDING AT THIS STAGE IS BY MEANS OF NEGATIVES.

> THE BUILDING SHOULD NOT BE 'ANOTHER SCIENCE BUILDING' IN THE 'ALL SCIENCE BUILDINGS ARE ALIKE' TRADITION.
>
> IT SHOULD NOT BE A MAZE OR RAT-WARREN LYING IN WAIT FOR THE UNWARY PASSERBY.
>
> IT SHOULD NOT BE A MONUMENT TO THE ULTIMATE TRIUMPH OF SCIENCE OVER HUMANKIND.
>
> IT SHOULD NOT BE THREE OR MORE SEPARATE BUILDINGS IN WHICH HAPPEN TO OCCUPY THE SAME SHELL.
>
> IT SHOULD NOT BE ORDINARY.
>
> IT SHOULD NOT BE GIMMICKY....AND SO ON.

ARCHITECTURAL - EDUCATIONAL CONCEPTS

CONCEPT OF FLEXIBILITY - THE ABILITY TO EXPAND, CONTRACT AND CONVERT SPACE EFFICIENTLY AND EFFECTIVELY TO RESPOND TO A CHANGING FUNCTION IN SCIENCE EDUCATION.

> COORDINATION OF ESTHETIC SPACE, STRUCTURES, AND UTILITIES

CONCEPT OF VERSATILITY - THE ARRANGEMENT OF COMPATIBLE SPACES WHICH PERFORM EFFECTIVELY NOT ONLY FOR ONE OF THE THREE DEPARTMENTS - - PHYSICS, CHEMISTRY, AND BIOLOGICAL SCIENCES - - BUT FOR THE OTHER TWO AS WELL.

> DEVELOPMENT OF THE COMMON FACILITIES

CONCEPT OF THE CENTER - CONSIDERATION OF THE FUNCTION AS IF IT EXTENDED BEYOND THE REALM OF A SCHOOL HOUSE INTO THE BROAD AREA OF COLLEGE, COMMUNITY, AND REGION.

> DEVELOPMENT OF A CENTER FOR CONTEMPORARY SCIENCE DESIGNED FOR ENCOURAGEMENT OF THE NON-SCIENCE MAJOR AND FOR COMMUNITY SERVICE

CONCEPT OF ACADEMIC DISTINCTION - THE REALIZATION AND EXPLORATION OF THE IDEA THAT THE LIBERAL ARTS COLLEGE IS UNIQUE AND RENDERS A DISTINCT ACADEMIC SERVICE THROUGH THE PURSUIT OF EXCELLENCE.

> ARRANGEMENT OF SPACE TO FACILITATE CLOSE STUDENT-PROFESSOR RELATIONSHIP BY PROVIDING A FRIENDLY, INFORMAL ENVIRONMENT

CONCEPT OF VARIANT GROUP SIZES - THE ADHERENCE TO THE NUMEROLOGY OF 1, 15, 30, 60, 180 FOR MAXIMUM EDUCATIONAL PERFORMANCE.

> PROVISION FOR A VARIETY OF SIZES OF TEACHING SPACES

CONCEPT OF VARIANT ATMOSPHERE AREAS - THE ACKNOWLEDGEMENT THAT LEARNING AND THE STIMULATION FOR LEARNING REQUIRE MANY DIFFERENT KINDS OF SPACES.

> PROVISION FOR MANY KINDS OF ATMOSPHERE AREAS - -
> LIGHT AND AIRY, DARK, ISOLATED, IMPRESSIVE,
> HUMBLE, FINISHED, AND ROUGH

CONCEPT OF A BUILDING EXPRESSION - THE RECOGNITION OF THE DESTRUCTION OF "SCIENTIFIC IVORY-TOWERISM" AS A STEREOTYPE OF THE SCIENTIFIC CONTEXT AND EXPRESSION OF A BUILDING SPIRIT WHICH REFLECTS THE FACT THAT SCIENCE IS NOT DONE IN A VACUUM.

> SHOULD REFLECT FROM WITHOUT AND FROM WITHIN -
> NO CLOSED DOORS

CONCEPT OF REGIONALISM - THE ALLOWANCE OF ARCHITECTURE TO RESPOND NATURALLY TO THE REGION.

> DEVELOPMENT OF AN INDIGENOUS ARCHITECTURE AND
> CONSIDERATION OF ARCHITECTURAL ECOLOGY

EXCERPTS FROM REFERENCE MATERIAL

"The non-scientists have a rooted impression that the scientists are shallowly optimistic, unaware of man's condition. On the other hand, the scientists believe that the literary intellectuals are totally lacking in foresight, peculiarly unconcerned with their brother men, in a deep sense anti-intellectual, anxious to restrict both art and thought to the existential moment."

Page 5

"It is bizarre how very little of twentieth-century science has been assimilated into twentieth-century art."

Page 17

"I believe the intellectual life of the whole of western society is increasingly being split into two polar groups."

"...at one pole we have the literary intellectuals, who incidentally while no one was looking took to referring to themselves as 'intellectuals' as though there were no others."

"Literary intellectuals at one pole - at the other scientists, and as the most representative, the physical scientists. Between the two a gulf of mutual incomprehension - sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding. They have a curious distorted image of each other."

Page 4

C. P. Snow, The Two Cultures and
The Scientific Revolution, Cambridge
University Press, New York, 1959.

"The scientist is never only a scientist. He is at the same time a living human being, he is a member of mankind. And so, his responsibility for the particular is counter-balanced by his share of responsibility for the whole."

Page 2

"The deepest rift that is at present dividing the edifice of science is the cleavage between natural science and the humanistic disciplines."

Page 5

"We are becoming more and more aware of the danger that lies in the specialization of the sciences. We are vexed by the barriers that are raised to separate the various disciplines from one another. Specialized science is powerless to give us a world-view that could sustain us in the confusion of our existence. And so we are longing for synthesis, searching for the point of vantage from which to gain perspective."

Page 1

C. F. Von Weizsäcker, The History of
Nature, The University of Chicago
Press PHOENIX BOOKS, Chicago, Ill., 1949.

"THE SHAME IS OURS, IF WE DO NOT MAKE SCIENCE PART OF OUR WORLD, INTELLECTUALLY AS MUCH AS PHYSICALLY."

PAGE 94

"WE LIVE IN A WORLD WHICH IS PENETRATED THROUGH AND THROUGH BY SCIENCE AND WHICH IS BOTH WHOLE AND REAL.

"THERE IS NO MORE TREATENING AND NO MORE DEGRADING DOCTRINE THAN THE FANCY THAT SOMEHOW WE MAY SHELVE THE RESPONSIBILITY FOR MAKING THE DECISIONS OF OUR SOCIETY BY PASSING IT TO A FEW SCIENTISTS ARMORED WITH A SPECIAL MAGIC."

PAGE 12

"THE WORLD TODAY IS MADE, IT IS POWERED BY SCIENCE; AND FOR ANY MAN TO ABDICATE AN INTEREST IN SCIENCE IS TO WALK WITH OPEN EYES TOWARD SLAVERY."

PAGE 13

J. BRONOWSKI, SCIENCE AND HUMAN VALUES,
HARPER BROTHERS, TORCHBOOKS, SCIENCE
LIBRARY, NEW YORK, 1956.

"THE THOUGHT THAT AN UNDERSTANDING OF SCIENCE MIGHT BE CONVEYED AS WELL OR BETTER WITHOUT DIRECT OBSERVATION, EXPERIMENT, AND MATHEMATICAL REASONING INVOLVES A FUNDAMENTAL MISAPPREHENSION OF THE NATURE OF SCIENCE."

"IT IS CLEAR THAT IMPORTANT LINES OF THOUGHT AND CONTENT INTERCONNECT THE SCIENCES WITH ONE ANOTHER. YET IT MUST BE ADDED THAT DESPITE THEIR MANY INTERCONNECTIONS AND SIMILARITIES, THE INDIVIDUAL SCIENCES DIFFER WIDELY. THESE DIFFERENCES EMANATE FROM THE NATURE OF PHYSICAL REALITY; THEY ARE NOT SIMPLY FOISTED UPON US BY THE PREDILECTIONS OF SCIENTISTS."

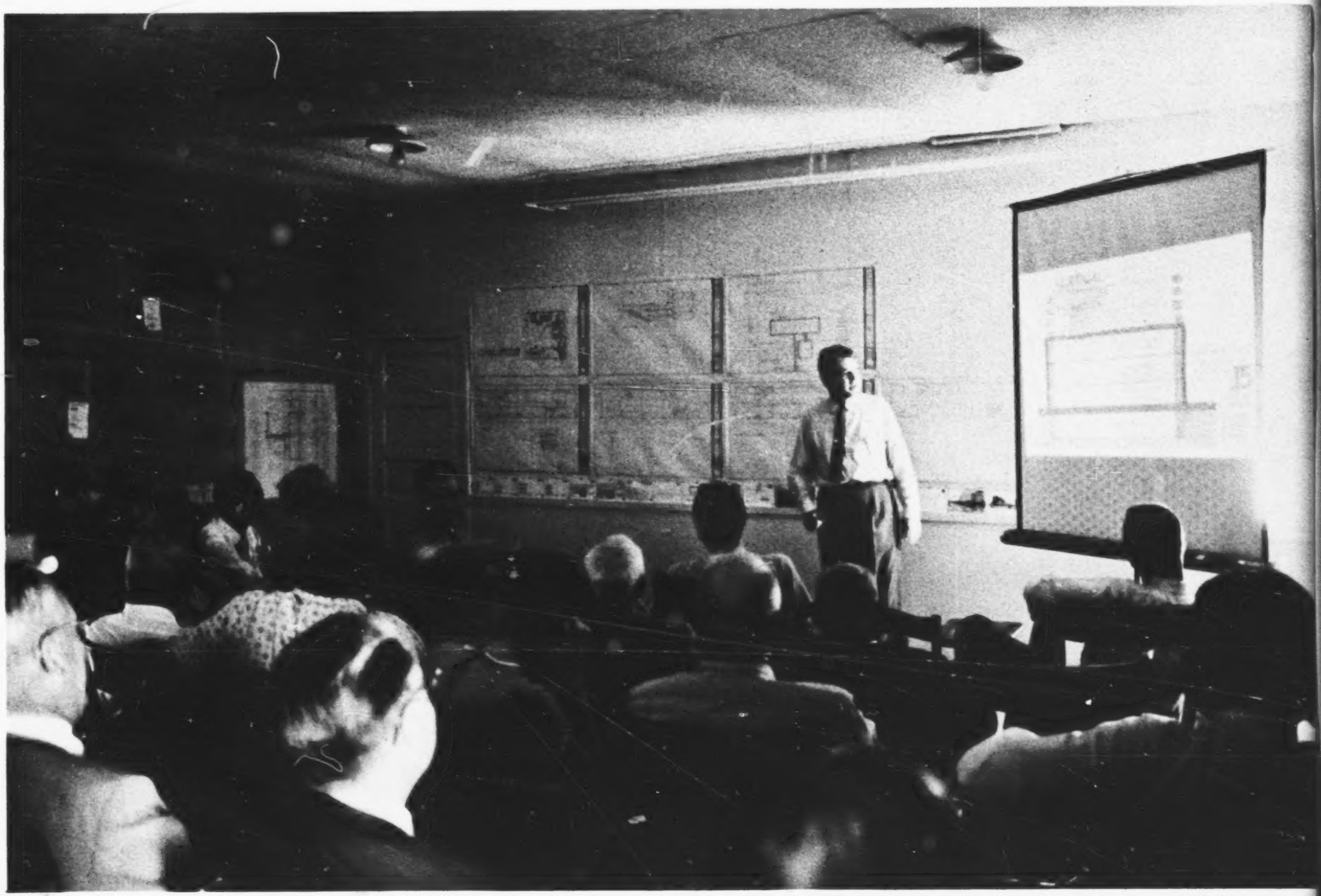
PAGE 153

REPORT OF HARVARD COMMITTEE, GENERAL
EDUCATION IN A FREE SOCIETY, HARVARD
UNIVERSITY, CAMBRIDGE, MASS., 1945.

"FOR THE LAST TWO HUNDRED YEARS SCIENTIFIC ACTIVITY, MEASURED IN ANY ONE OF THE NATURAL QUANTITATIVE WAYS - BY THE NUMBER OF PEOPLE ENGAGED, BY THE VOLUME OF PUBLICATION, OR BY MORE SUBSTANTIVE CRITERIA, HAS DOUBLED ESSENTIALLY EVERY TEN YEARS."

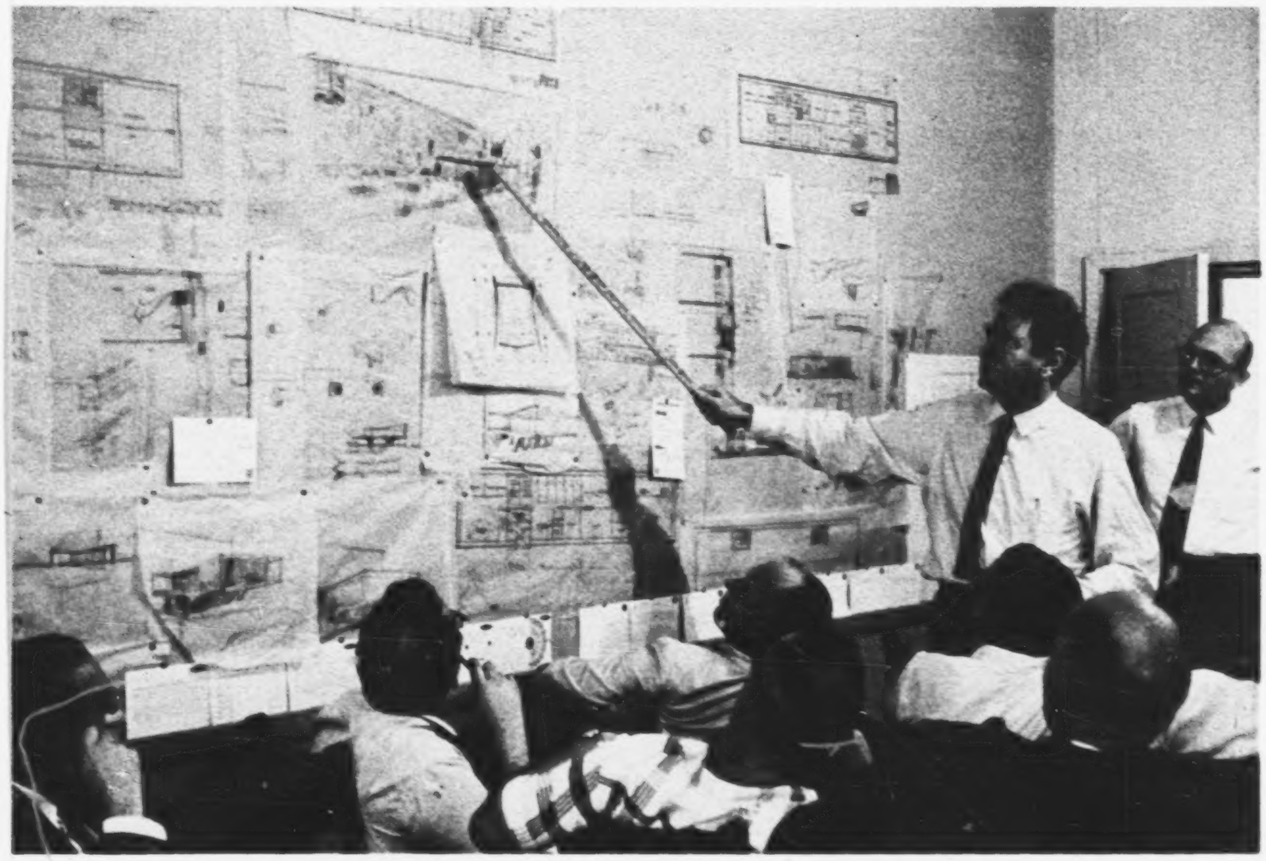
PAGE 61

DR. J. ROBERT OPPENHEIMER, ON TECHNOLOGICAL HORIZONS, A.I.A. JOURNAL,
WASHINGTON, D. C., JUNE, 1960.

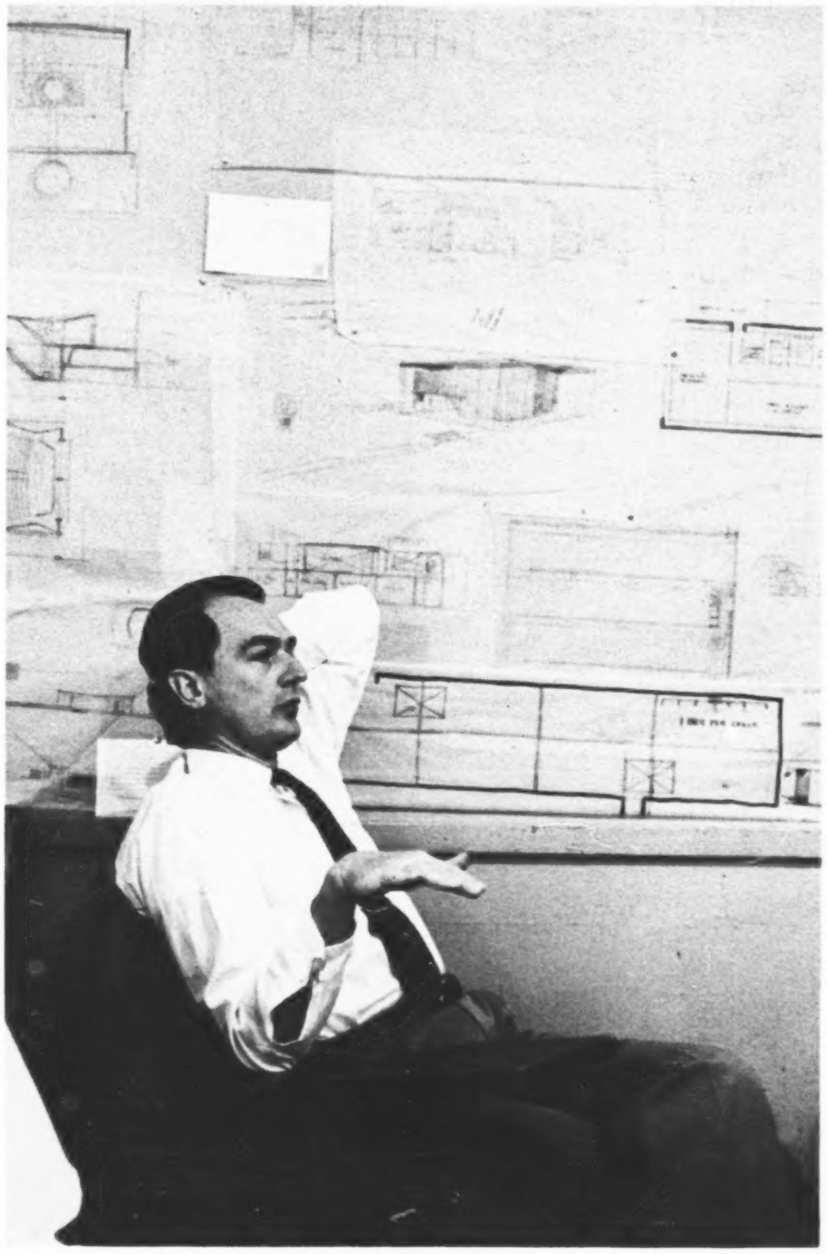


THIS PHOTOGRAPH AND THE SUBSEQUENT ONES WERE TAKEN DURING THE FRIDAY MORNING PRESENTATION SESSION. IN ATTENDANCE WERE MEMBERS OF THE BOARD OF DIRECTORS, PRESIDENT LOUIS T. BENEZET AND KEY MEMBERS OF HIS ADMINISTRATION, THE FACULTY BUILDING COMMITTEE, AND THE TEAM OF ARCHITECTS-ENGINEERS.

THIS CANDID SHOT SHOWS PRESIDENT BENEZET (LEFT) DISCUSSING THE PLANS WITH PROFESSOR MARY ALICE HAMILTON, WHO PARTICIPATED IN THE PLANNING AND WILL EVENTUALLY USE THE BUILDING. MEMBERS OF THE BOARD OF DIRECTORS ARE SEEN IN THE BACKGROUND.

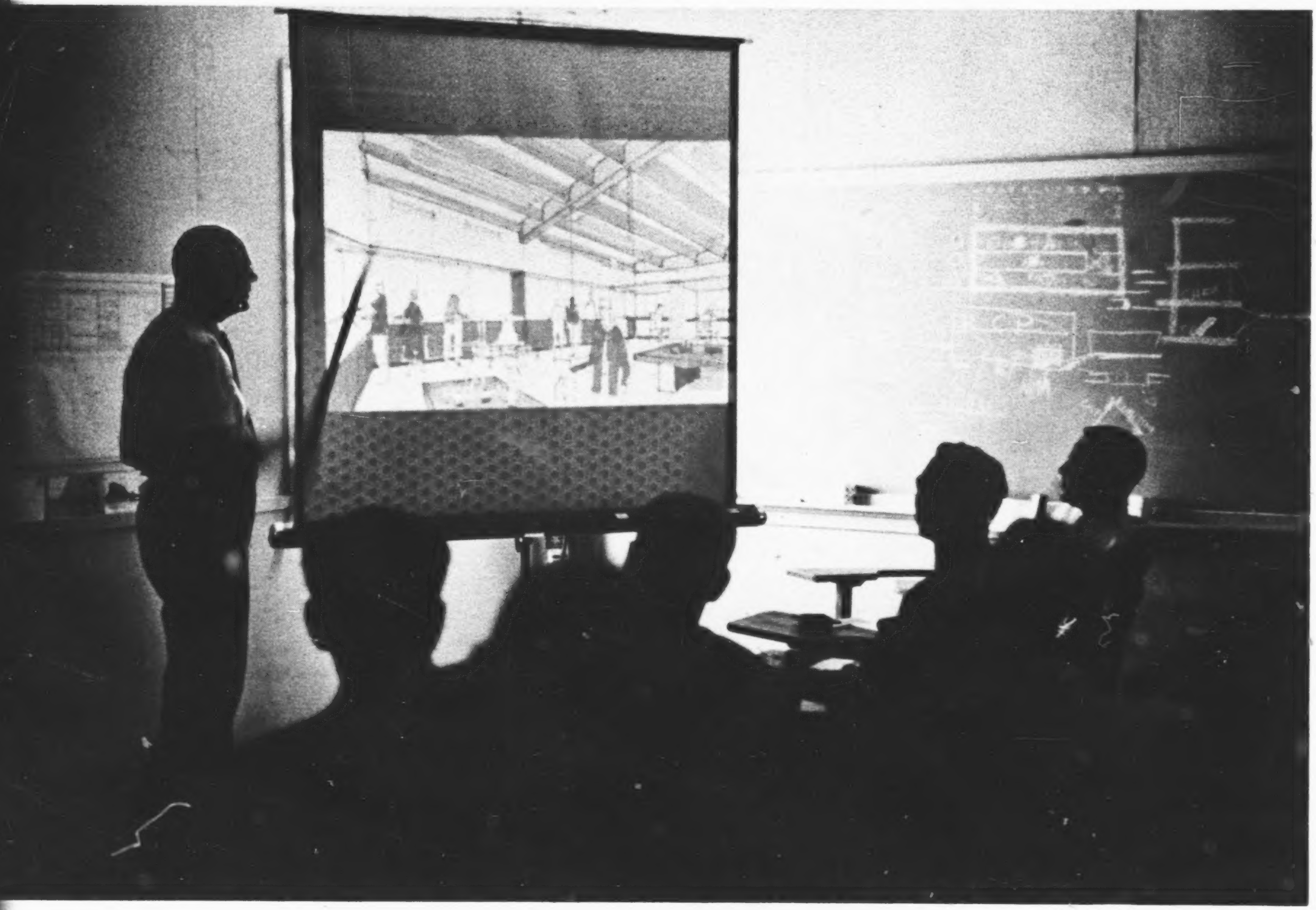


BILL CAUDILL AND FRANK LAWYER ARE SEEN DISCUSSING SOME OF THE MANY PLANS AND SKETCHES THAT WERE CONSIDERED BEFORE A DECISION WAS MADE ON THE ACCEPTED BASIC LAYOUT. DURING THIS WEEK OF CONCENTRATED DESIGN, AS MANY AS FORTY PEOPLE CONTRIBUTED THEIR IDEAS, AND THE BASIC EDUCATIONAL-ARCHITECTURAL CONCEPT LITERALLY GREW FROM VAGUE IDEAS TO A WELL-DEFINED PLAN.



DURING THE QUESTION-ANSWER PERIOD OF THE FRIDAY MORNING PRESENTATION, PRESIDENT LOUIS T. BENEZET ACTIVELY PARTICIPATED IN EVALUATING THE BASIC EDUCATIONAL CONCEPTS AND THE DESIGNER'S INTERPRETATION OF THEM.

DURING THE "COFFEE BREAK," ARCHITECT CAUDILL REVIEWED WITH RUSSELL T. TUTT, CHAIRMAN OF THE BUILDING COMMITTEE OF THE BOARD OF TRUSTEES, ONE OF THE FEATURES THAT HAD BEEN DISCUSSED DURING THE PRESENTATION.



Chief Designer Frank Lawyer is seen explaining one of the sketches he made of the Physics Laboratories. During this night and day "squatters," hundreds of sketches and analyses were made toward formulating the basis for making Olin Hall into a highly functional teaching tool.